

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SANYO ELECTRIC CO LTD

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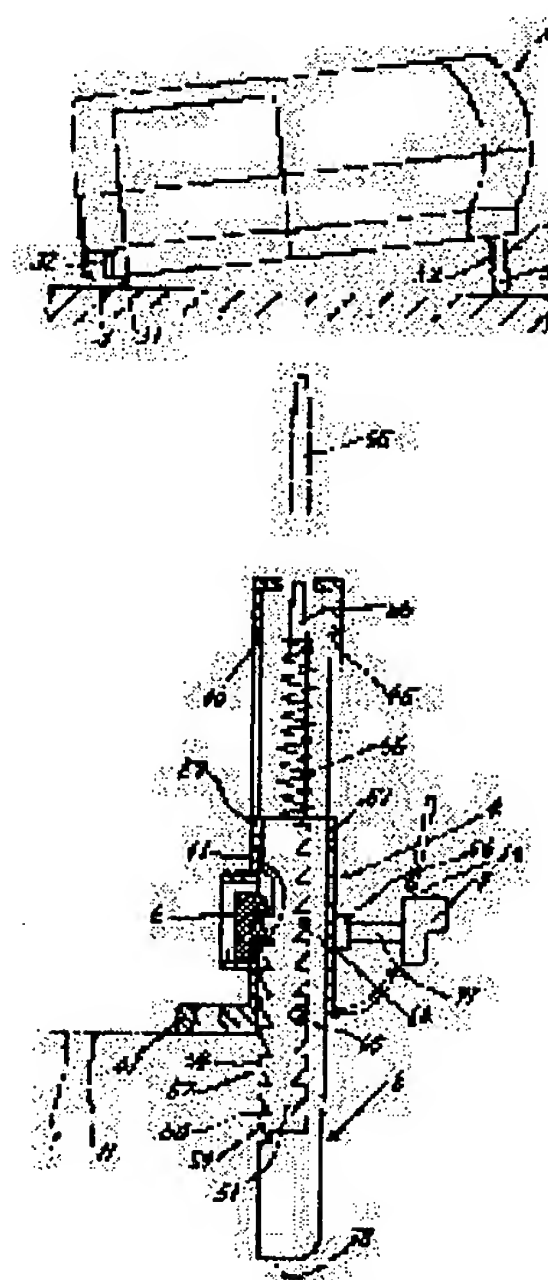
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NAKAGAWA NORIO

## (54) PROJECTOR AND TOOL FOR ADJUSTING HEIGHT THEREOF

## (57)Abstract:

PROBLEM TO BE SOLVED: To easily adjust the height and the elevation angle of a projector.

SOLUTION: This tool is constituted of a stick-out/in leg 51 arranged to stick out/in the center of a front part being the projection side of the base of the projector 1 and two screw type abutting parts 3 and 3 screwed on both- end sides of the rear part of the base. Recessed parts for locking 53 are formed at nearly equal intervals in a longitudinal direction on the leg 51, and a projection 61 to be engaged with the recessed part 53 is arranged at a fixed position to be opposed to the recessed part 53 so that it may be energized by a spring to the recessed part 53 side. A push button 7 for pressing the projection 61 in a direction where the projection 61 is separated from the leg 51 against the spring 62 is connected to the projection 61, and the leg 51 is fixed at a specified projected position by engaging the projection 61 in the desired recessed part 53 of the leg 51.



## LEGAL STATUS

[Date of request for examination] 22.10.1999

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[Kind of final disposal of application other than the  
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registration]

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 CLAIMS
 

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## [Claim(s)]

[Claim 1] A frequent appearance foot (51) is prepared in the center of anterior part which is the projection side of the base of a projector cabinet (11) possible [ frequent appearance ]. It is the projector which screwed the section (3) and (3) in the posterior part both-ends side at the bottom per two screw types. The crevice for a stop (53) is established [ a frequent appearance foot (51) ] in a lengthwise direction at abbreviation regular intervals. Counter this crevice (53), and the projection (61) which can engage with a crevice (53) carries out spring energization at a crevice (53) side, and is arranged in an orientation. The push button (7) for pressing in the direction which a projection (61) is resisted [ direction ] at a spring (62) and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated. The projector characterized by engaging with the crevice (53) of a request of a projection (61) of a frequent appearance foot (51), and being able to fix a frequent appearance foot (51) in a predetermined protrusion location.

[Claim 2] The frequent appearance foot arranged in the center of anterior part which is the projection side of the base of a projector (1) possible [ frequent appearance ] (51), It is constituted by the section (3) and (3) per [ which was screwed in the posterior part both-ends side at the bottom ] two screw types. The crevice for a stop (53) is established [ a frequent appearance foot (51) ] in a lengthwise direction at abbreviation regular intervals. Counter this crevice (53), and the projection (61) which can engage with a crevice (53) carries out spring energization at a crevice (53) side, and is arranged in an orientation. The push button (7) for pressing in the direction which a projection (61) is resisted [ direction ] at a spring (62) and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated. The height adjustment implement of the projector which engages with the crevice (53) of a request of a projection (61) of a frequent appearance foot (51), and can fix a frequent appearance foot (51) in a predetermined protrusion location.

[Claim 3] The foot unit in which the frequent appearance member (5) was held in the case (4) in which the inferior surface of tongue carried out opening, and the frequent appearance member (5) was attached possible [ frequent appearance ] to the projector (1) from the center of anterior part by the side of projection of the base of a projector (1) (2), It is the height adjustment implement of the projector constituted by the section (3) and (3) per [ which was arranged by the posterior part both sides of the base of a projector (1) ] two screw types. The both ends of a frequent appearance member (5) are an parallel longitudinal frequent appearance foot (51) and (51). The concave convex (52) in which a crevice (53) and heights (54) followed serrate is formed in both the frequent appearance foot (51). In a case (4) Ranging over both the frequent appearance foot (51), an engagement member (6) is arranged in an orientation, and the projection (61) which engages and releases the concave convex (52) of a frequent appearance foot (51) is formed in the both ends of this engagement member (6). The spring (62) which energizes a projection (61) in the direction pressed in a concave convex (52) is arranged between a case (4) and an engagement member (6). To an engagement member (6) The push button (7) for pressing in the direction which a spring (62) is resisted [ direction ] and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated. The height adjustment implement of the projector which engages with the crevice (53) of a request of a projection (61) of a frequent appearance foot (51), and can fix a frequent appearance member (5) in a predetermined protrusion location.

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 [Translation done.]

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the projector equipped with the height of a projector, the elevation angle, the adjustment implement that can adjust an inclination on either side, and this adjustment implement.

[0002]

[Description of the Prior Art] The conventional \*\*\*\* adjustment implement is constituted by the section (3), (3), and the protruding line (8) that protruded on the base posterior part per [ which was arranged by the anterior part both sides which are base projection sides of a projector (1) ] two screw types, as shown in drawing 8 and drawing 9. As for the protruding line (8), the center has swollen in the shape of radii. Adjustment of the elevation angle of a projector (1) is performed by turning the section (3) and (3) per screw type, and changing the amount of protrusions of this hit section (3). Since only one pitch of a screw projects and an amount only changes even if it carries out one revolution (3) of sections per screw type in the case of the above-mentioned adjustment implement, when changing the elevation angle of a projector (1) greatly, adjustment takes time and effort.

[0003] Moreover, when turning the two hit sections (3) and (3) with both hands, in order that the weight of a projector (1) may act on the section (3) per screw type, rotation becomes heavy, and it must turn further, applying the section (3) to a table per screw type, and the problem which a blemish attaches to a table arises. This invention clarifies the projector equipped with the height adjustment implement and this adjustment implement of a projector which can solve the above-mentioned problem at once.

[0004]

[Means for Solving the Problem] Invention of claim 1 prepares a frequent appearance foot (51) in the center of anterior part which is the projection side of the base of a projector cabinet (11) possible [ frequent appearance ]. It is the projector which screwed the section (3) and (3) in the posterior part both-ends side at the bottom per two screw types. The crevice for a stop (53) is established [ a frequent appearance foot (51) ] in a lengthwise direction at abbreviation regular intervals. Counter this crevice (53), and the projection (61) which can engage with a crevice (53) carries out spring energization at a crevice (53) side, and is arranged in an orientation. The push button (7) for pressing in the direction which a projection (61) is resisted [ direction ] at a spring (62) and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated, it engages with the crevice (53) of a request of a projection (61) of a frequent appearance foot (51), and a frequent appearance foot (51) can be fixed in a predetermined protrusion location. The frequent appearance foot arranged in the center of anterior part whose invention of claim 2 is the projection side of the base of a projector (1) possible [ frequent appearance ] (51), It is constituted by the section (3) and (3) per [ which was screwed in the posterior part both-ends side at the bottom ] two screw types. The crevice for a stop (53) is established [ a frequent appearance foot (51) ] in a lengthwise direction at abbreviation regular intervals. Counter this crevice (53), and the projection (61) which can engage with a crevice (53) carries out spring energization at a crevice (53) side, and is arranged in an orientation. The push button (7) for pressing in the direction which a projection (61) is resisted [ direction ] at a spring (62) and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated. A frequent appearance member (5) is held in the case (4) in which the inferior surface of tongue carried out opening of the invention of claim 3. The foot unit in which the frequent appearance member (5) was attached possible [ frequent appearance ] to the projector (1) from the center of anterior part by the side of projection of the base of a projector (1) (2), It is the height adjustment implement of the projector constituted by the section (3) and (3) per [ which was arranged by the posterior part both sides of the base of a projector (1) ] two screw types. The both ends of a frequent appearance member (5) are an parallel longitudinal frequent appearance foot (51) and (51). The concave convex (52) in which a crevice (53) and heights (54) followed serrate is formed in both the frequent appearance foot



(51). In a case (4) Ranging over both the frequent appearance foot (51), an engagement member (6) is arranged in an orientation, and the projection (61) which engages and releases the concave convex (52) of a frequent appearance foot (51) is formed in the both ends of this engagement member (6). The spring (62) which energizes a projection (61) in the direction pressed in a concave convex (52) is arranged between a case (4) and an engagement member (6). To an engagement member (6) The push button (7) for pressing in the direction which a spring (62) is resisted [ direction ] and makes this projection (61) estrange from a frequent appearance foot (51) is coordinated.

[0005]

[Function and Effect] If a push button (7) is pushed, a projection (61) will estrange invention of claim 1 and claim 2 from a frequent appearance foot (51), and engagement to the crevice (53) of this frequent appearance foot (51) will separate from it. Therefore, if the anterior part of a projector (1) is raised to required height, pushing a push button (7), a frequent appearance foot (51) will descend at once until it hits a table. If press of a push button (7) is canceled, with a spring (62), again, a projection (61) will be pressed by the frequent appearance foot (51), and a projection (61) will engage with the crevice (53) of a frequent appearance foot (51).

[0006] since the height of the anterior part of a projector (1) is only gradually changeable for every pitch of the crevice (53) of a frequent appearance foot (51) -- adjustment of the amount of protrusions of a frequent appearance foot (51) -- insufficient -- the need for further fine tuning -- things are also produced. In this case, what is necessary is to turn the section (3) and (3) per two hind screw types, and just to tune the amount of protrusions finely with frequent appearance foot (51), after carrying out the height of a projector (1), and adjustment of an elevation angle. It can turn lightly, without not taking time and effort so much, even if it will turn the section (3) one side at a time per two screw types if the section (3) is turned per screw type by the hand of another side, supporting [ since it is fine tuning, do not need to rotate the section (3) repeatedly per screw type, and ] the weight of a projector (1) by one hand namely, but moreover giving a blemish to a table.

[0007] A push button (7) is lowered to the location of a request of push and a projector (1) by the hand of another side, supporting [ to make anterior part of a projector (1) low ] the anterior part of a projector (1) by one hand. Since engagement of a projection (61) and a frequent appearance foot (51) is canceled, with descent of a projector (1), a frequent appearance foot (51) is hidden smoothly and the hindrance of descent of a projector (1) does not become. If the anterior part of a projector (1) falls to desired height, press of a push button (7) will be opened wide and a frequent appearance foot (51) will be made to engage with a projection (61). What is necessary is just to operate the section (3) per screw type in the aforementioned procedure, if fine tuning is required.

[0008] In addition to the operation effectiveness of invention of above-mentioned claim 1 and claim 2, invention of claim 3 has the further following effectiveness. Since a case (4) is held for a frequent appearance member (5) and one foot unit (2) is constituted, Since the unit is assembled beforehand and a projector (1) can be attached, As well as assembly-operation nature being good, even if failure of a foot unit, breakage of components, etc. arise, a foot unit (2) is taken out from a projector (1), decomposition of a foot unit (2) can be performed externally, and workability is good. Exchange is possible per foot unit (2) if needed, and working capacity can be raised further.

[0009]

[Embodiment of the Invention] Drawing 1 is [ the side elevation and drawing 3 of the front view of a liquid crystal projector (1) and drawing 2 ] the bottom view. Since the structure of a liquid crystal projector is well-known, explanation is omitted. In addition, if this invention is the projector which can project an image on the plane of projection of not only a liquid crystal projector but the front, it will not ask a class. For a front, in the following explanation, the projection side of a projector (1) and the back are the opposite side. The height adjustment implement of this invention is constituted by the section (3) and (3) per [ which was screwed in the foot unit / which was arranged in the center of anterior part which is the projection side of the base of a projector (1) possible / frequent appearance / (2), and posterior part both-ends side at the bottom ] two screw types. Per screw type, the section (3) protrudes a screw shaft (32) in the center of the circular plate (31) which \*\*\*\*(ed) outside as usual, and is screwing this screw shaft (32) in the base of a projector (1). As shown in drawing 4, drawing 5, and drawing 6, a foot unit (2) holds a frequent appearance member (5) possible [ frequent appearance ] in the case (4) in which the inferior surface of tongue carried out opening, and is constituted.

[0010] To the both ends of an oblong case body (43), the case (4) protruded, was formed, attached a sheath body (44) and (44) in the both ends of a case body (43), and has prepared a piece (41) and (41) upward. The bis-hole (42) is established by the piece of anchoring (41). The longwise guide slotted hole (45) is established in the sheath body (44) order side. As shown in drawing 3, a case (4) is inserted in the mounting hole (12) of the oblong rectangle established on the base of the cabinet (11) of a projector (1), and the piece of anchoring (41) is attached in a cabinet (11) on a screw.

[0011] The frequent appearance foot (51) which slides the inside of said sheath body (44) and (44) to an oblong foot subject's (50)'s both ends in which a frequent appearance member (5) is held possible [ frequent appearance on said case body (43) ], and (51) protrude upward. A guide shaft (57) protrudes short, this guide shaft (57) fits into the guide slotted hole (45) of a sheath body (44) possible [ a slide ], and a frequent appearance member (5) haunts a frequent appearance foot (51) upper limit order side from a case (4) in the range of a guide slotted hole (45). The shaft (55) protruded on the upper limit side of each frequent appearance foot (51) upward, and it has fitted into the condition that a coil spring (56) has allowances in this shaft. The frequent appearance member (5) of a spring (56) is not effective up to the abbreviation mid-position of the frequent appearance range, and when it pushes in from this location and the force joins a direction, the length is decided so that the upper limit of a spring (56) of a spring (56) may be effective in the crown plate of a sheath body (44).

[0012] The concave convex (52) in which heights (54) and a crevice (53) followed the lengthwise direction serrate is formed in the rear face of each frequent appearance foot (51). If the top face of heights (54) is formed in an abbreviation horizontal and the force acts in the direction which extracts it from a case (4) although an inferior surface of tongue gears firmly [ when the force of the direction hidden into a case (4) acts on a frequent appearance member (5) to the projection (61) of an engagement member (6) which the tip side inclines highly and carries out a postscript ], it will slide on a concave convex (52), and it will not gear. In the example, whenever seven crevices (53) are formed in a concave convex (52) and one step of engagement locations of a projection (61) differ, it fluctuates about 1 degree of elevation angles of a projector (1) at a time. A serrate stop train (65) is formed in the outside side face of a frequent appearance foot (51), and this can be geared in the direction extracted from a case (4), although a frequent appearance member (5) does not gear in the direction hidden into a case (4) contrary to the above-mentioned concave convex (52) to the engagement pin (64) of the engagement member (6) which carries out a postscript. The inferior surface of tongue of the foot subject (50) of a frequent appearance member (5) has swollen in the shape of radii gently, and this inferior-surface-of-tongue center section is equipped with the elastic plate (58) formed in elastic members, such as rubber.

[0013] In said case body (43), the engagement member (6) is arranged ranging over both the frequent appearance foot (51) of a frequent appearance member (5), and (51). The engagement member (6) has fitted into the guide pin (63) prepared in the both-ends side of a case body (43) at the cross direction possible [ the slide to a cross direction ]. The both ends of an engagement member (6) are crooked so that it may hang over the 3rd page, the medial surface of a frequent appearance foot (51), a concave convex (52), and the lateral surface, the concave convex (52) of a frequent appearance foot (51) is countered, and the projection (61) which can engage with the crevice (53) of a concave convex (52) is prepared. The inclination of a projection (61) is contrary to the inclination of the heights (54) of a concave convex (52). Moreover, the engagement pin (64) which can engage and release the serrate stop train (65) of said frequent appearance foot (51) in the edge of an engagement member (6) protrudes on the inner sense. The receptacle seat (66) protrudes on the front face of a center section of an engagement member (6).

[0014] Between a case body (43) and an engagement member (6), the tabular spring (62) which carries out press energization of the engagement member (6) at a concave convex (52) is arranged, and the bis-stop of this spring (62) is carried out to the engagement member (6). A push button anchoring hole (13) is established by the front lower part of the cabinet (11) of a projector (1), and the push button (7) is attached in this hole (13) possible [ the slide to order ]. The hole (46) with which the piece of \*\*\*\*\* (71) established \*\*\*\*\* and this piece of a presser foot (71) in the center of a front face of a case body (43) was penetrated on the rear face of a push button (7), and it is in contact with the receptacle seat (66) of said engagement member (6). A push button (7) is pressed, and if a spring (62) is resisted and an engagement member (6) is moved back, engagement of a projection (61) and engagement pin (64) of an engagement member (6), and the concave convex (52) \*\*\*\*\* stop train (65) of a frequent appearance foot (51) will separate.

[0015] If the anterior part of a projector (1) is very raised to required height, pushing a push button (7), a frequent appearance foot (51) will descend at once by self-weight until it hits a table. If press of a push button (7) is canceled, with a spring (62), again, a projection (61) is pressed by the frequent appearance foot (51), a projection (61) will engage with the crevice (53) of a frequent appearance foot (51), and an engagement pin (64) will engage with a serrate stop train (65). since the height of the anterior part of a projector (1) is only gradually changeable for every pitch of the crevice (53) of a frequent appearance foot (51) -- adjustment of the amount of protrusions of a frequent appearance foot (51) -- insufficient -- the need for further fine tuning -- things are also produced. In this case, what is necessary is to turn the section (3) and (3) per two hind screw types, and just to tune finely with frequent appearance foot (51), after carrying out the height of a projector (1), and adjustment of an elevation angle. It can turn lightly, without not taking time and effort so much, even if it will turn the section (3) one side at a time per two screw types if the section (3) is turned per screw type by the hand of another side, supporting [ since it is fine tuning, do not need to turn the section (3) repeatedly per screw type, and ] the weight of a projector (1) by one hand namely, but moreover giving a blemish to a



table.

[0016] A push button (7) is lowered to the location of a request of push and a projector (1) by the hand of another side, supporting [ to make anterior part of a projector (1) low ] the anterior part of a projector (1) by one hand. Since engagement of a projection (61) and a frequent appearance foot (51) is canceled, with descent of a projector (1), a frequent appearance foot (51) is hidden smoothly and the hindrance of descent of a projector (1) does not become. If the anterior part of a projector (1) falls to desired height, press of a push button (7) will be opened wide and a frequent appearance foot (51) will be made to engage with a projection (61). What is necessary is just to operate the section (3) per screw type in the aforementioned procedure, if fine tuning is required. Where press of a push button (7) is wide opened in the example Since the engagement pin (64) of an engagement member (6) gets into gear in the serrate stop train (65) of a frequent appearance foot (51) and the drawer from the case (4) of a frequent appearance member (5) is prevented, Even if it lifts a projector (1), a frequent appearance member (5) falls and projects from a case (4) by self-weight, and an amount does not change. moreover -- unprepared -- a push button (7) -- pushing -- the anterior part of a projector (1) -- rapid -- Shimo -- \*\*\*\* -- it can prevent a fall impact being eased and damaging a projector (1) with the spring (56) arranged between the frequent appearance foot (51) and the sheath body (44).

[0017] Since in the case of an example a case (4) is held for a frequent appearance member (5) and one foot unit (2) is constituted, Since a projector (1) can be attached after assembling and setting a unit beforehand, As well as assembly-operation nature being good, even if failure of a foot unit, breakage of components, etc. arise, a foot unit (2) is taken out from a projector (1), decomposition of a foot unit (2) can be performed externally, and workability is good. Exchange is possible per foot unit (2) if needed, and working capacity can be raised further.

[0018] Moreover, per screw type of the posterior part of a projector (1), since the inferior surface of tongue of a frequent appearance member (5) has swollen in the shape of radii gently, when the table leans to right and left, in case it holds into a right posture, the projector (1) itself is stabilized and it can be supported by adjustment of the section (3) and (3). And elastic plate (58) wearing is carried out on the inferior surface of tongue of a frequent appearance member (5), an elastic plate (58) carries out elastic deformation to resemble the self-weight of a projector (1), and it becomes per field to a table, and it is stabilized further and a projector (1) can be set on a table. This invention is not limited to the configuration of the above-mentioned example, and various deformation is possible for it in the range of a publication to a claim.

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[Translation done.]

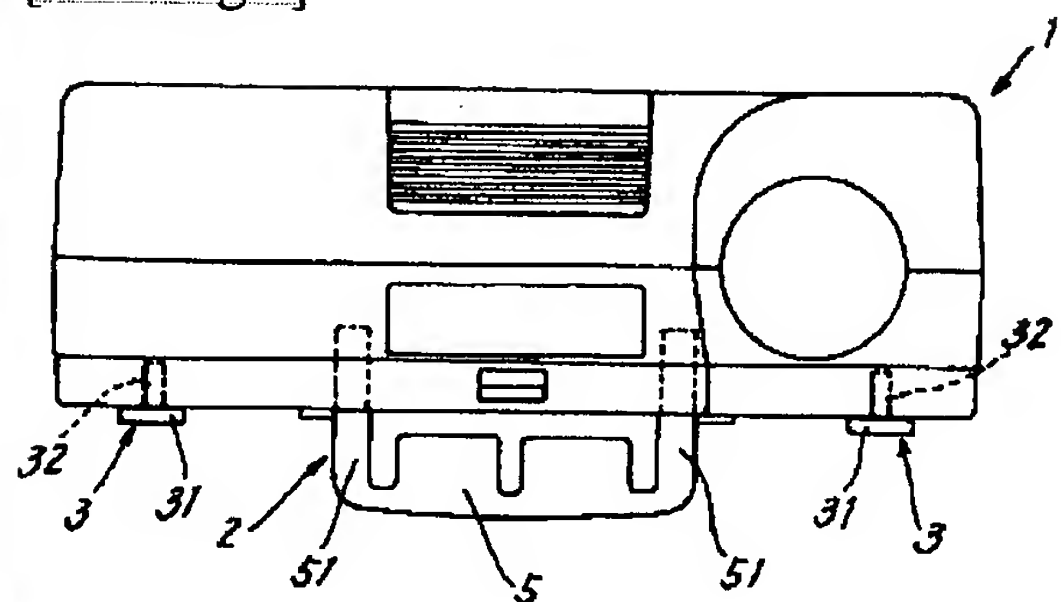
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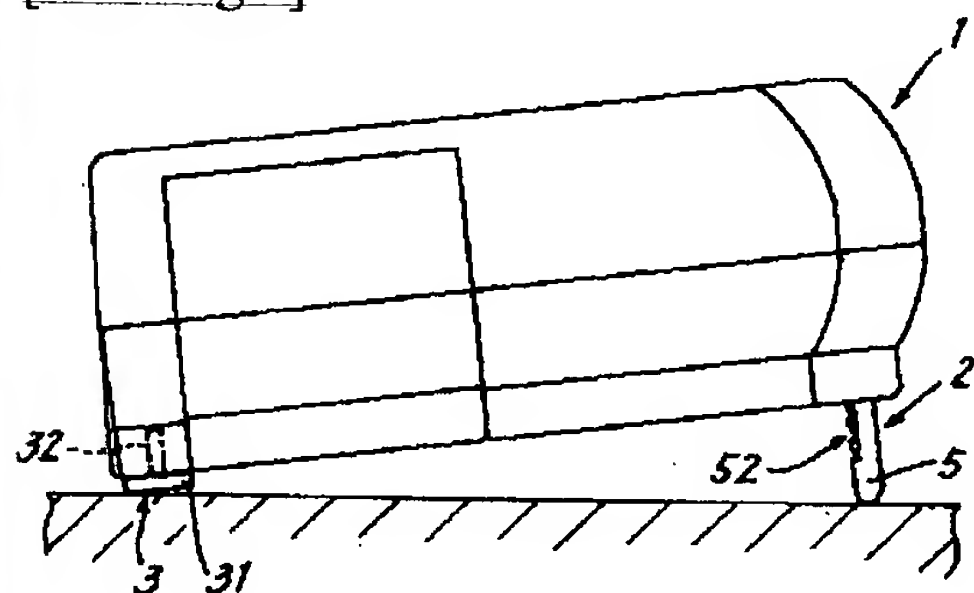
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## DRAWINGS

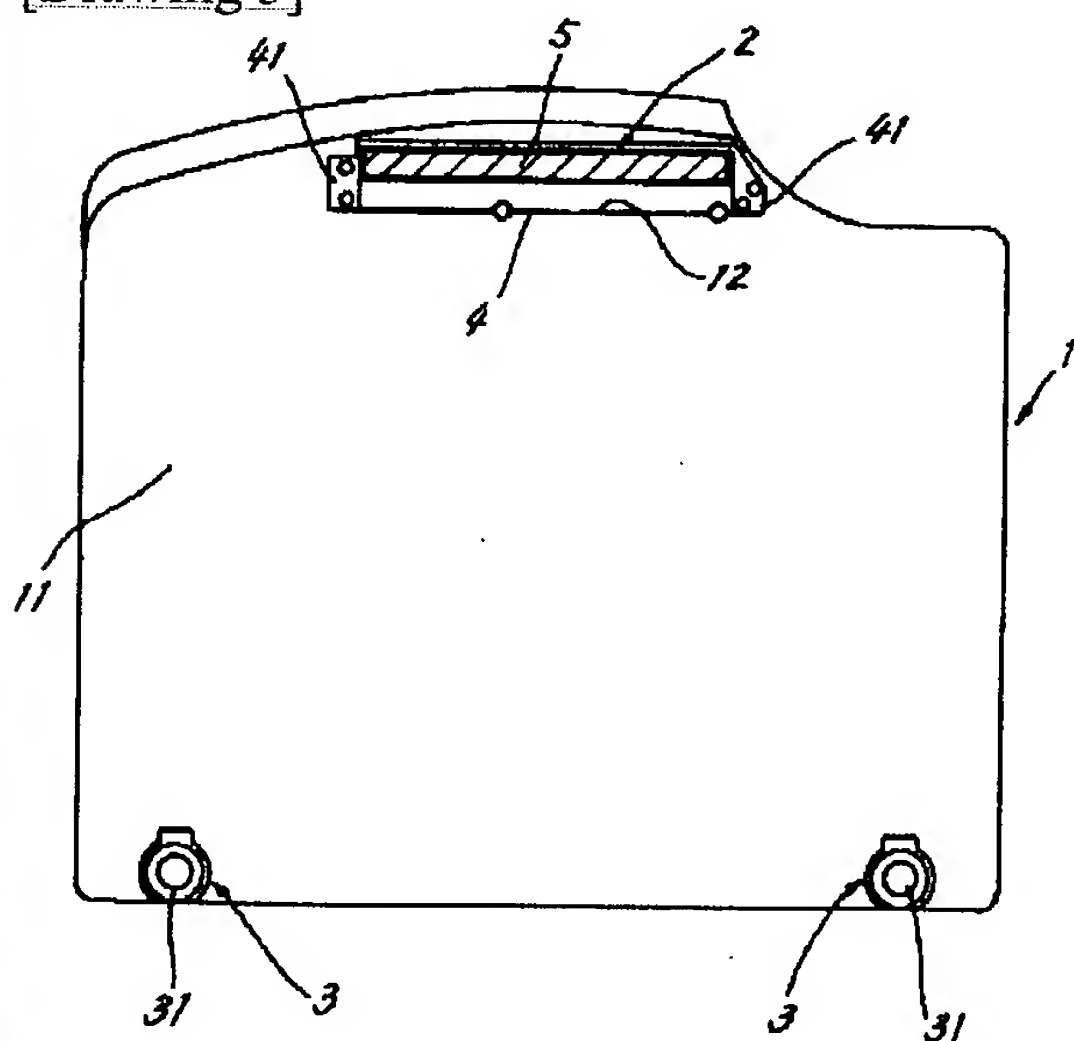
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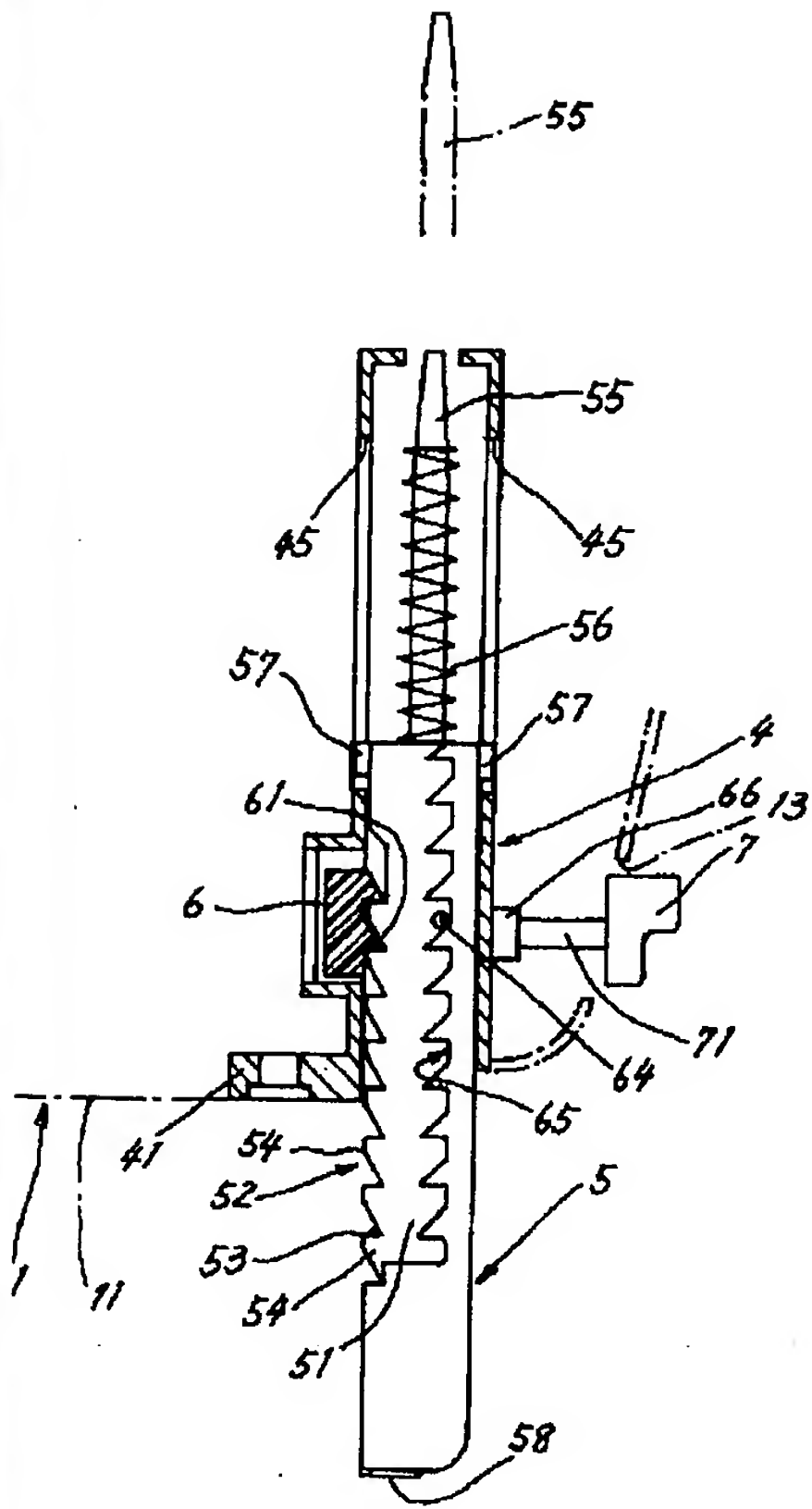
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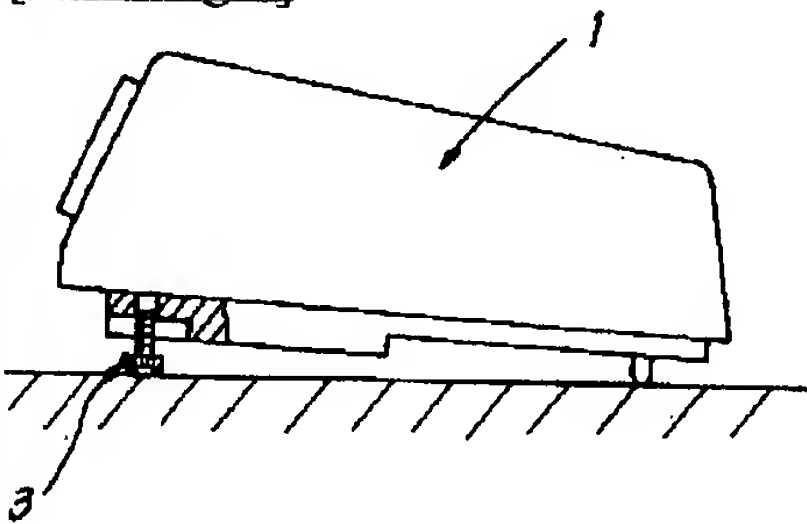
[Drawing 3]



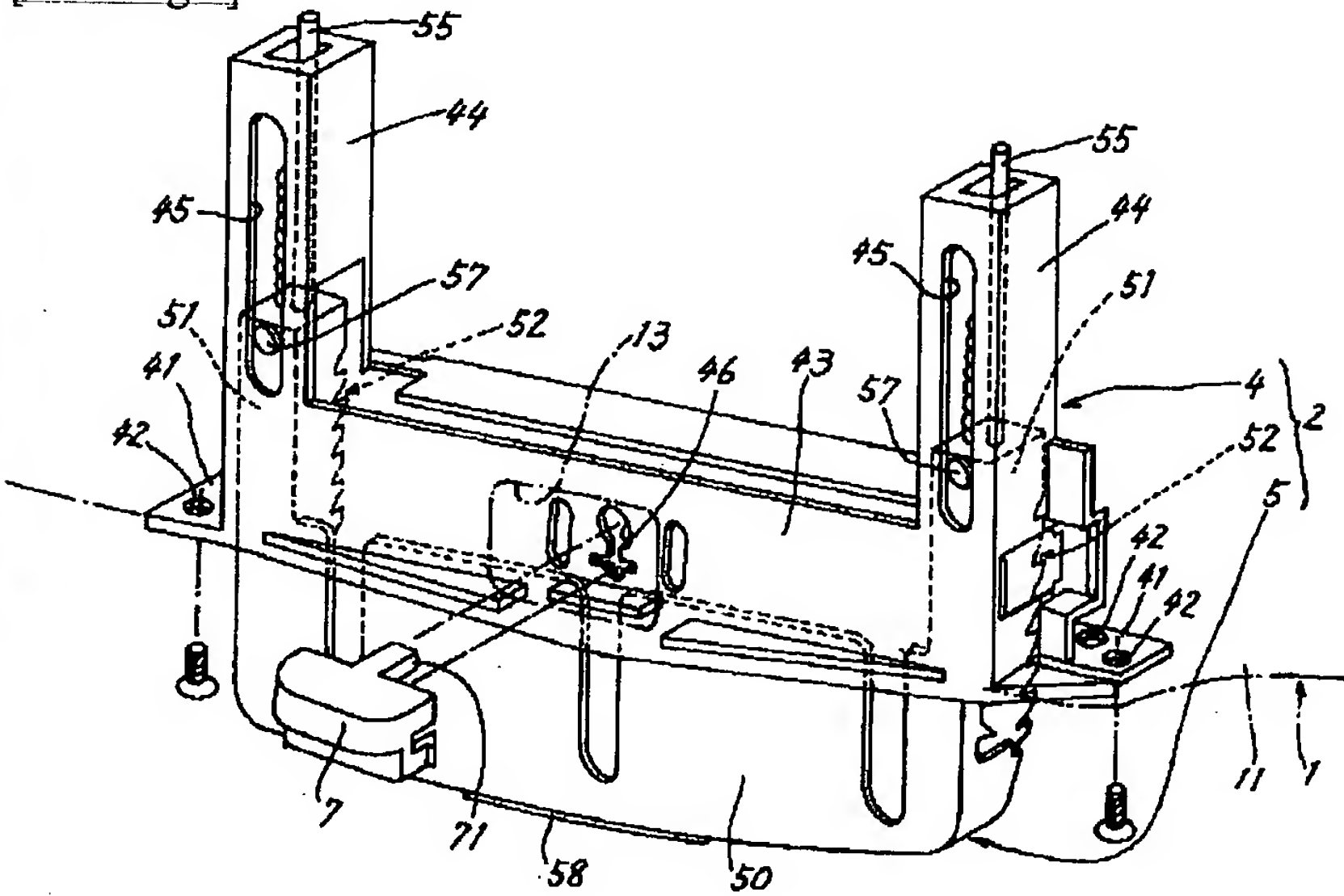
[Drawing 6]



[Drawing 9]

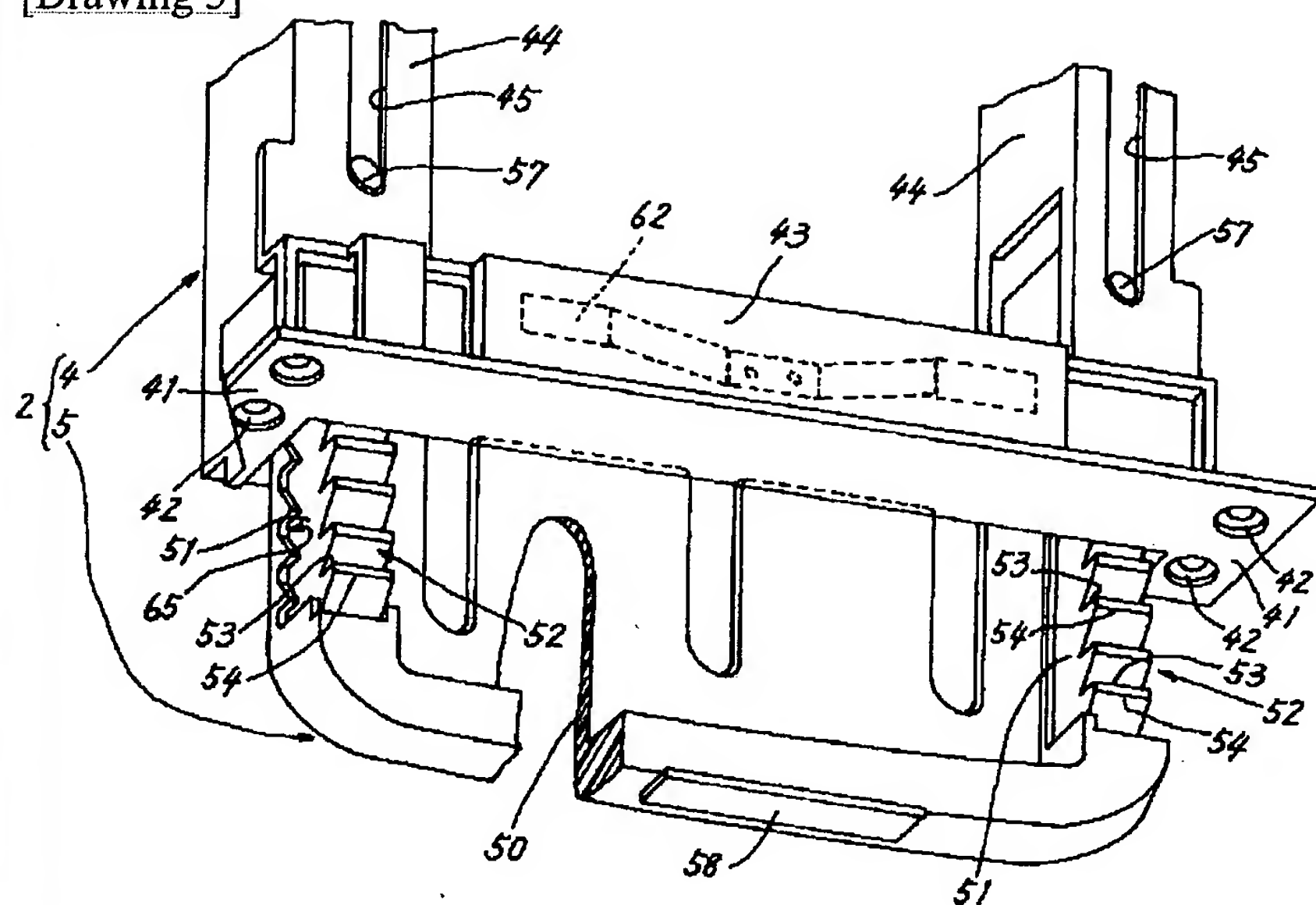


[Drawing 4]

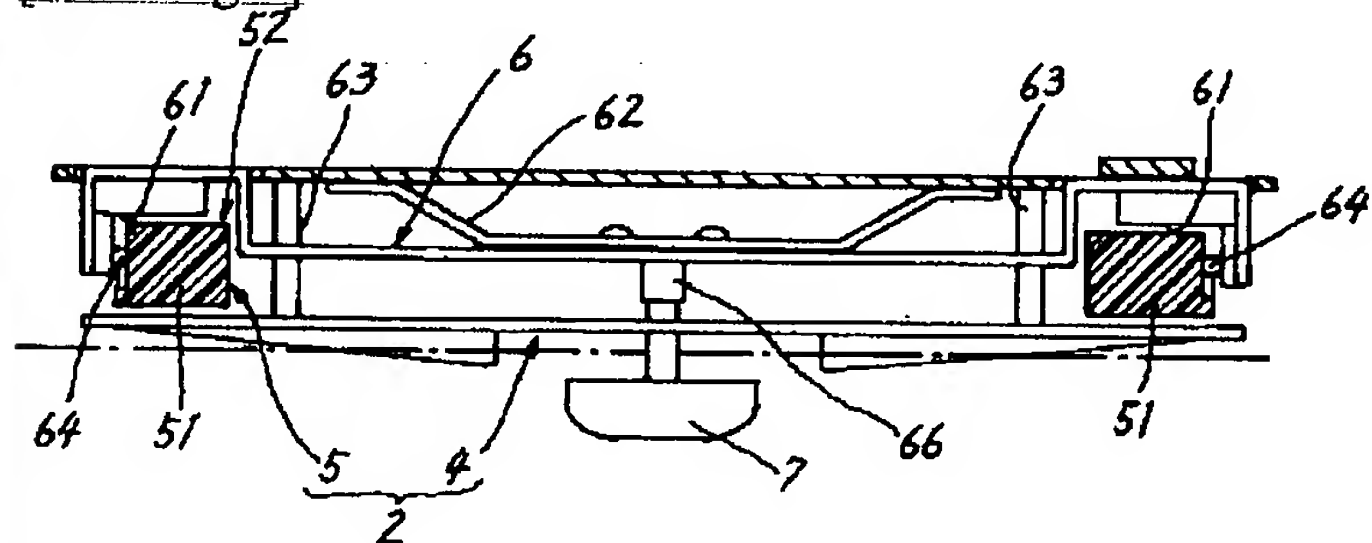




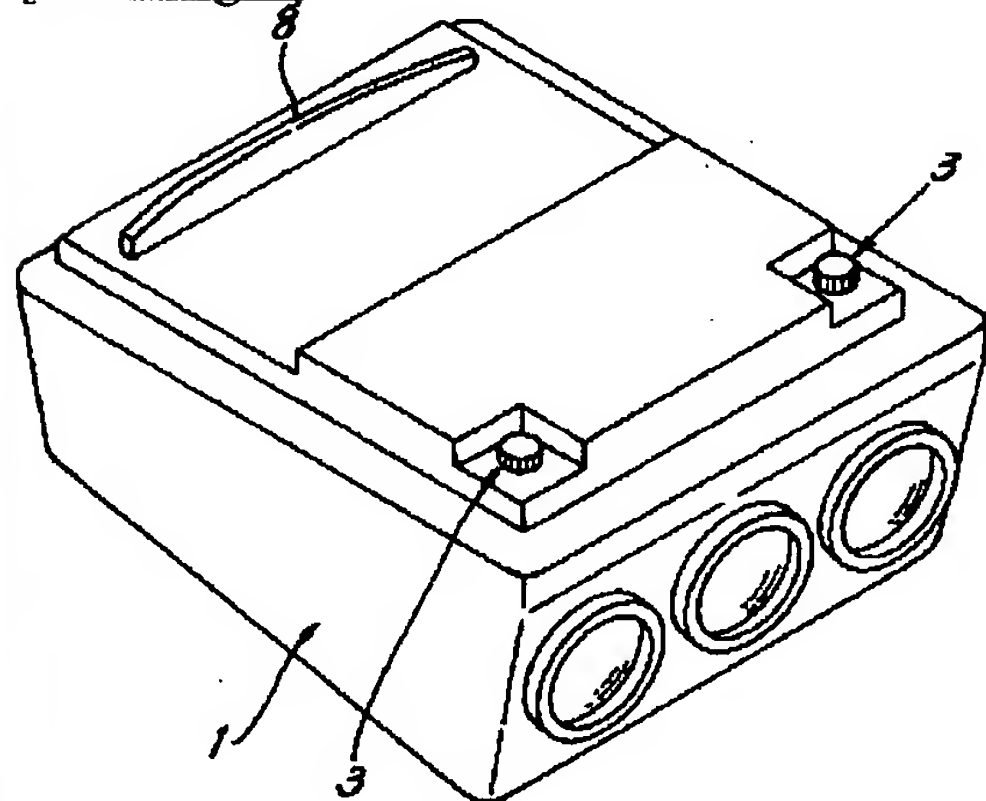
[Drawing 5]



[Drawing 7]



[Drawing 8]



[Translation done.]

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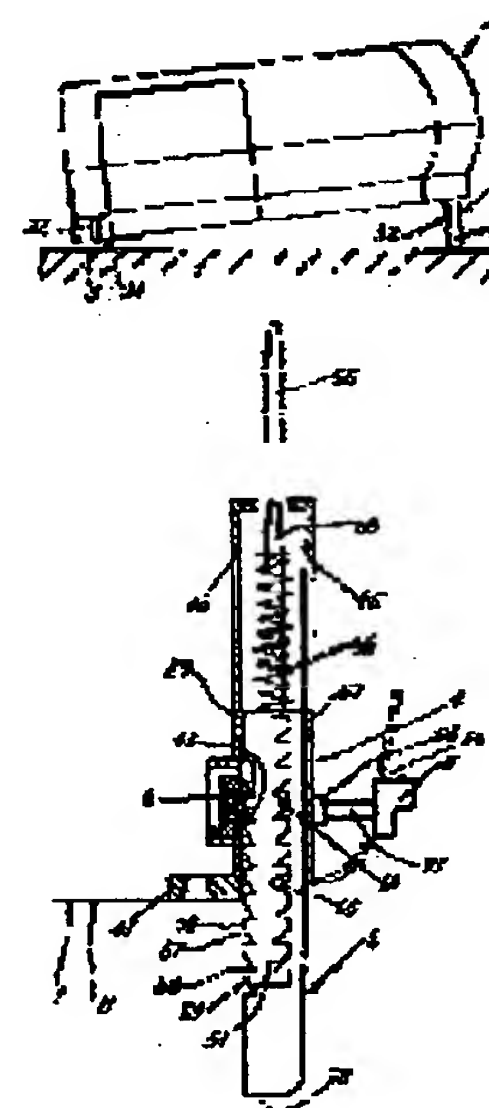
NAKAGAWA NORIO

## (54) PROJECTOR AND TOOL FOR ADJUSTING HEIGHT THEREOF

## (57)Abstract

PROBLEM TO BE SOLVED: To easily adjust the height and the elevation angle of a projector.

SOLUTION: This tool is constituted of a stick-out/in leg 51 arranged to stick out/in the center of a front part being the projection side of the base of the projector 1 and two screw type abutting parts 3 and 3 screwed on both end sides of the rear part of the base. Recessed parts for locking 53 are formed at nearly equal intervals in a longitudinal direction on the leg 51, and a projection 61 to be engaged with the recessed part 53 is arranged at a fixed position to be opposed to the recessed part 53 so that it may be energized by a spring to the recessed part 53 side. A push button 7 for pressing the projection 61 in a direction where the projection 61 is separated from the leg 51 against the spring 62 is connected to the projection 61, and the leg 51 is fixed at a specified projected position by engaging the projection 61 in the desired recessed part 53 of the leg 51.



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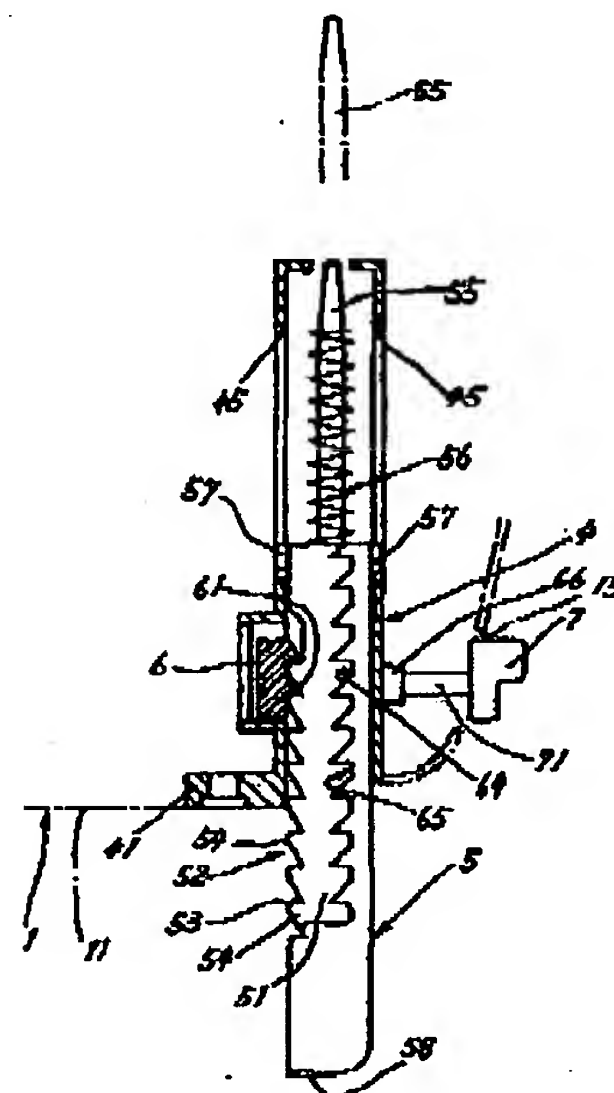
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(54) 【発明の名称】 プロジェクター及びその高さ調整具

(57) 【要約】

【課題】 プロジェクターの高さ、仰角の調整を簡単に行なう。

【構成】 プロジェクター1の底面の投影側である前部中央に出没可能に配備された出沒脚51と、底面の後部両端側に螺合された2つのネジ式当り部3、3とによって構成され、出沒脚51には係止用凹部53が縦方向に略等間隔に設けられ、該凹部53に対向して定位置に凹部53に係合可能な突起61が凹部53側にバネ付勢して配備され、突起61にはバネ62に抗して該突起61を出沒脚51から離間させる方向に押圧するための押しボタン7が連繋されており、突起61を出沒脚51の所望の凹部53に係合して出沒脚51を所定の突出位置にて固定できる。





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## 【特許請求の範囲】

【請求項1】 プロジェクターキャビネット(11)の底面の投影側である前部中央に出没可能に出没脚(51)を設け、底面の後部両端側に2つのネジ式当り部(3)(3)を螺合したプロジェクターであって、出没脚(51)には係止用凹部(53)が縦方向に略等間隔に設けられ、該凹部(53)に対向して凹部(53)に係合可能な突起(61)が凹部(53)側にバネ付勢して定位位置に配備され、突起(61)にはバネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されており、突起(61)を出没脚(51)の所望の凹部(53)に係合して出没脚(51)を所定の突出位置にて固定できることを特徴とするプロジェクター。

【請求項2】 プロジェクター(1)の底面の投影側である前部中央に出没可能に配備された出没脚(51)と、底面の後部両端側に螺合された2つのネジ式当り部(3)(3)とによって構成され、出没脚(51)には係止用凹部(53)が縦方向に略等間隔に設けられ、該凹部(53)に対向して凹部(53)に係合可能な突起(61)が凹部(53)側にバネ付勢して定位位置に配備され、突起(61)にはバネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されており、突起(61)を出没脚(51)の所望の凹部(53)に係合して出没脚(51)を所定の突出位置にて固定できるプロジェクターの高さ調整具。

【請求項3】 下面が開口したケース(4)に出没部材(5)が収容され、プロジェクター(1)に対しプロジェクター(1)の底面の投影側の前部中央から出没部材(5)が出没可能に取付けられた脚ユニット(2)と、プロジェクター(1)の底面の後部両側に配備された2つのネジ式当り部(3)(3)とによって構成されたプロジェクターの高さ調整具であって、出没部材(5)の両端は平行な縦向きの出没脚(51)(51)となっており、両出没脚(51)には凹部(53)と凸部(54)が鋸歯状に連続した凹凸面(52)が形成され、ケース(4)内には、両出没脚(51)に跨がって係合部材(6)が定位位置に配備され、該係合部材(6)の両端に出没脚(51)の凹凸面(52)に係脱する突起(61)が形成され、ケース(4)と係合部材(6)との間に突起(61)を凹凸面(52)に押圧する方向に付勢するバネ(62)が配備され、係合部材(6)には、バネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されており、突起(61)を出没脚(51)の所望の凹部(53)に係合して出没部材(5)を所定の突出位置にて固定できるプロジェクターの高さ調整具。

## 【発明の詳細な説明】

【0001】

【発明の属する分野】本発明は、プロジェクターの高さ、仰角、左右の傾きを調整できる調整具及び該調整具を具えたプロジェクターに関するものである。

【0002】

【従来の技術及び発明が解決しようとする課題】従来の

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新種調整具は、図8、図9に示す如く、プロジェクター(1)の底面投影側である前部両側に配備された2つのネジ式当り部(3)(3)と、底面後部に突設した突条(8)とによって構成されている。突条(8)は中央が円弧状に膨らんでいる。プロジェクター(1)の仰角の調整は、ネジ式当り部(3)(3)を回して、該当り部(3)の突出量を変えて行なう。上記調整具の場合、ネジ式当り部(3)を1回転させても、ネジの1ピッチだけ突出量が変わるだけであるから、プロジェクター(1)の仰角を大きく変更する場合、調整に手間が掛かる。

【0003】又、両手で2つの当り部(3)(3)を回す場合、ネジ式当り部(3)にはプロジェクター(1)の重量が作用するため、回転が重くなり、更に、ネジ式当り部(3)をテーブルに当てたまま回さねばならず、テーブルに傷がつく問題が生じる。本発明は、上記問題を一挙に解決できるプロジェクターの高さ調整具及び該調整具を具えたプロジェクターを明らかにするものである。

【0004】

【課題を解決するための手段】請求項1の発明は、プロジェクターキャビネット(11)の底面の投影側である前部中央に出没可能に出没脚(51)を設け、底面の後部両端側に2つのネジ式当り部(3)(3)を螺合したプロジェクターであって、出没脚(51)には係止用凹部(53)が縦方向に略等間隔に設けられ、該凹部(53)に対向して凹部(53)に係合可能な突起(61)が凹部(53)側にバネ付勢して定位位置に配備され、突起(61)にはバネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されており、突起(61)を出没脚(51)の所望の凹部(53)に係合して出没脚(51)を所定の突出位置にて固定できる。請求項2の発明は、プロジェクター(1)の底面の投影側である前部中央に出没可能に配備された出没脚(51)と、底面の後部両端側に螺合された2つのネジ式当り部(3)(3)とによって構成され、出没脚(51)には係止用凹部(53)が縦方向に略等間隔に設けられ、該凹部(53)に対向して凹部(53)に係合可能な突起(61)が凹部(53)側にバネ付勢して定位位置に配備され、突起(61)にはバネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されている。請求項3の発明は、下面が開口したケース(4)に出没部材(5)が収容され、プロジェクター(1)に対しプロジェクター(1)の底面の投影側の前部中央から出没部材(5)が出没可能に取付けられた脚ユニット(2)と、プロジェクター(1)の底面の後部両側に配備された2つのネジ式当り部(3)(3)とによって構成されたプロジェクターの高さ調整具であって、出没部材(5)の両端は平行な縦向きの出没脚(51)(51)となっており、両出没脚(51)には凹部(53)と凸部(54)が鋸歯状に連続した凹凸面(52)が形成され、ケース(4)内には、両出没脚(51)に跨がって係合部材(6)が定位位置に配備され、該係合部材(6)の両端に出没脚(51)の凹凸面(52)に係脱する突起(61)が

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形成され、ケース(4)と係合部材(6)との間に突起(61)を凹凸面(52)に押圧する方向に付勢するバネ(62)が配備され、係合部材(6)には、バネ(62)に抗して該突起(61)を出没脚(51)から離間させる方向に押圧するための押しボタン(7)が連繋されている。

【0005】

【作用及び効果】請求項1及び請求項2の発明は、押しボタン(7)を押すと、突起(61)が出没脚(51)から離間して、該出没脚(51)の凹部(53)との係合が外れる。従って、押しボタン(7)を押しつつ、プロジェクター(1)の前部を必要な高さまで持上げると、出没脚(51)はテーブルに当るまで一挙に下降する。押しボタン(7)の押圧を解除するとバネ(62)によって再び突起(61)が出没脚(51)に押圧され、突起(61)は出没脚(51)の凹部(53)に係合する。

【0008】プロジェクター(1)の前部の高さは、出没脚(51)の凹部(53)のピッチ毎に段階的に変えることができるだけであるので、出没脚(51)の突出量の調整だけでは不十分で、更に微調整の必要とも生じる。この場合は、出没脚(51)によって、プロジェクター(1)の高さ、仰角の調整をした後、後部の2つのネジ式当り部(3)(3)を回して、突出量を微調整すればよい。微調整であるからネジ式当り部(3)を何度も回転させる必要はなく、一方の手でプロジェクター(1)の重量を支えつつ、他方の手でネジ式当り部(3)を回せば、即ち、2つのネジ式当り部(3)を片方ずつ回しても、それほど手間は掛からず、しかも、テーブルに傷をつけることなく軽く回すことができる。

【0007】プロジェクター(1)の前部を低くしたいときは、一方の手でプロジェクター(1)の前部を支えつつ、他方の手で押しボタン(7)を押す。プロジェクター(1)を所望の位置まで下げる。突起(61)と出没脚(51)の係合は解除されているため、プロジェクター(1)の下降に伴って、出没脚(51)はスムーズに没し、プロジェクター(1)の下降の妨げとはならない。プロジェクター(1)の前部が所望の高さまで下がれば、押しボタン(7)の押圧を開放して、突起(61)と出没脚(51)に係合させる。微調整が必要ならば、前記の手順でネジ式当り部(3)を操作すればよい。

【0008】請求項3の発明は、上記請求項1及び請求項2の発明の作用効果に加えて、更に下記の効果を有する。出没部材(5)をケース(4)を収容して、1つの脚ユニット(2)を構成しているため、予めユニットを組立てておいてから、プロジェクター(1)の取付けができるため、組立作業性が良いのは勿論、脚ユニットの故障、部品の破損等が生じても、プロジェクター(1)から脚ユニット(2)を取り出して、外部で脚ユニット(2)の分解ができ、作業性がよい。必要に応じて脚ユニット(2)単位で取替えができ、作業能率を一層高めることができる。

【0009】

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【発明の実施の形態】図1は液晶プロジェクター(1)の正面図、図2はその側面図、図3はその底面図である。液晶プロジェクターの構造は公知であるので説明は省略する。尚、本発明は、液晶プロジェクターに限らず、前方の投影面に像を投影できるプロジェクターであれば種類を問わない。以下の説明で、前とは、プロジェクター(1)の投影側、後とはその反対側である。本発明の高さ調整具は、プロジェクター(1)の底面の投影側である前部中央に出没可能に配備された脚ユニット(2)と、底面の後部両端側に螺合された2つのネジ式当り部(3)(3)とによって構成される。ネジ式当り部(3)は、従来と同様にして、外部に露出した円形の板(31)の中央にネジ軸(32)を突設し、該ネジ軸(32)をプロジェクター(1)の底面に螺合している。脚ユニット(2)は、図4、図5、図6に示す如く、下面が開いたケース(4)に、出没部材(5)を出没可能に収容して構成されている。

【0010】ケース(4)は、横長のケース本体(43)の両端に上向きに軸体(44)(44)を突設して形成され、ケース本体(43)の両端に取付け片(41)(41)を設けている。取付け片(41)にはビス孔(42)が開設されている。軸体(44)の前後面には、縦長のガイド溝孔(45)が開設されている。図3に示す如く、プロジェクター(1)のキャビネット(11)の底面に開設した横長の矩形的取付け穴(12)にケース(4)を挿入して、取付け片(41)をキャビネット(11)にビスにて取付ける。

【0011】出没部材(5)は、前記ケース本体(43)に出没可能に収容される横長の脚主体(50)の両端に、前記軸体(44)(44)内をスライドする出没脚(51)(51)を上向きに突設されている。出没脚(51)上端の前後面には、短くガイド軸(57)が突設され、該ガイド軸(57)が軸体(44)のガイド溝孔(45)にスライド可能に嵌まり、ガイド溝孔(45)の範囲で出没部材(5)は、ケース(4)から出没する。各出没脚(51)の上端面には軸(55)を上向きに突設され、該軸にコイルバネ(56)が余裕のある状態に嵌まっている。バネ(56)は、出没部材(5)が出没範囲の略中間位置までは利かず、この位置から押込み方向に力が加わった際に、バネ(56)の上端が軸体(44)の天井板に当たってバネ(56)が利く様に長さが決められている。

【0012】各出没脚(51)の後面には、凸部(54)と凹部(53)が縦方向に鋸歯状に連続した凹凸面(52)が形成されている。凸部(54)の上面は、略水平に形成され、下面は先端側が高く傾斜しており、後記する係合部材(6)の突起(61)に対して、出没部材(5)にケース(4)に投する方向の力が作用した場合には強固に噛み合うが、ケース(4)から抜出す方向に力が作用すれば凹凸面(52)を滑って噛み合わない。実施例では、凹凸面(52)に7つの凹部(53)が形成され、突起(61)の係合位置が1段異なることにより、プロジェクター(1)の仰角は約1°ずつ増減する。出没脚(51)の外側側面には、鋸歯状係止列(65)が形成され、これは後記する係合部材(6)の係合ピン(64)に対し

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て、上記凹凸面(52)と逆に、出沒部材(5)がケース(4)に没する方向には噛み合わないが、ケース(4)から抜出す方向には噛み合うことが可能である。出沒部材(5)の脚主体(50)の下面は緩やかに円弧状に膨らんでおり、該下面中央部には、ゴム等の弾性部材にて形成した弾性板(58)が装着されている。

【0013】前記ケース本体(43)内には出沒部材(5)の両出沒脚(51)(51)に跨がって、係合部材(6)が配備されている。係合部材(6)は、ケース本体(43)の両端側に前後方向に設けたガイドピン(63)に前後方向にスライド可能に嵌まっている。係合部材(6)の両端は、出沒脚(51)の内側面、凹凸面(52)、外側面の3面に被さる様に屈曲しており、出沒脚(51)の凹凸面(52)に対向して、凹凸面(52)の凹部(53)に係合可能な突起(61)が設けられている。突起(61)の傾斜は、凹凸面(52)の凸部(54)の傾斜とは逆である。又、係合部材(6)の端部には、前記出沒脚(51)の鋸歯状係止列(65)に係脱可能な係合ピン(64)が内向きに突設されている。係合部材(6)の中央部前面には、受け座(66)が突設されている。

【0014】ケース本体(43)と係合部材(6)との間には、係合部材(6)を凹凸面(52)に押圧付勢する板状バネ(62)が配備され、該バネ(62)は係合部材(6)にビス止めされている。プロジェクター(1)のキャビネット(11)の前面下部には、押しボタン取付け孔(13)が開設され、該孔(13)に押しボタン(7)が前後にスライド可能に取付けられている。押しボタン(7)の後面には、押圧え片(71)が突設され、該押圧え片(71)は、ケース本体(43)の前面中央に開設した孔(46)を貫通して、前記係合部材(6)の受け座(66)に当接している。押しボタン(7)を押圧して、バネ(62)に抗して係合部材(6)を後方に移動させると、係合部材(6)の突起(61)及び係合ピン(64)と、出沒脚(51)の凹凸面(52)及鋸歯状係止列(65)の係合が外れる。

【0015】然して、押しボタン(7)を押しつつ、プロジェクター(1)の前部を必要な高さまで持上げると、出沒脚(51)はテーブルに当たるまで自重で一挙に下降する。押しボタン(7)の押圧を解除するとバネ(62)によって再び突起(61)が出沒脚(51)に押圧され、突起(61)は出沒脚(51)の凹部(53)に係合し、係合ピン(64)は鋸歯状係止列(65)に係合する。プロジェクター(1)の前部の高さは、出沒脚(51)の凹部(53)のピッチ毎に段階的に変えることができるだけであるので、出沒脚(51)の突出量の調整だけではならず、更に微調整の必要とも生じる。この場合は、出沒脚(51)によって、プロジェクター(1)の高さ、仰角の調整をした後、後部の2つのネジ式当り部(3)(3)を回して微調整すればよい。微調整であるからネジ式当り部(3)を何回も回す必要はなく、一方の手でプロジェクター(1)の重量を支えつつ、他方の手でネジ式当り部(3)を回せば、即ち、2つのネジ式当り部(3)を片方ずつ回しても、それほど手間はかからず、しかも、テーブルに傷をつけることなく軽く回すことができ

る。

【0016】プロジェクター(1)の前部を低くしたいときは、一方の手でプロジェクター(1)の前部を支えつつ、他方の手で押しボタン(7)を押し、プロジェクター(1)を所望の位置まで下げる。突起(61)と出沒脚(51)の係合は解除されているため、プロジェクター(1)の下降に伴って、出沒脚(51)はスムーズに没し、プロジェクター(1)の下降の妨げとはならない。プロジェクター(1)の前部が所望の高さまで下がれば、押しボタン(7)の押圧を開放して、突起(61)と出沒脚(51)に係合させる。微調整が必要ならば、前記の手順でネジ式当り部(3)を操作すればよい。実施例では、押しボタン(7)の押圧を開放した状態では、係合部材(6)の係合ピン(64)が、出沒脚(51)の鋸歯状係止列(65)に噛み合っており、出沒部材(5)のケース(4)からの引き出しは阻止されるため、プロジェクター(1)を持上げても、出沒部材(5)が自重でケース(4)から下がって突出量に変化することはない。又、不用意に押しボタン(7)を押して、プロジェクター(1)の前部が急激に下がっても、出沒脚(51)と箱体(44)との間に配備したバネ(56)によって、落下衝撃が緩和され、プロジェクター(1)を損傷することを防止できる。

【0017】実施例の場合、出沒部材(5)をケース(4)を収容して、1つの脚ユニット(2)を構成しているため、予めユニットを組み立ておいてから、プロジェクター(1)の取付けできるため、組立作業性が良いのは勿論、脚ユニットの故障、部品の破損等が生じても、プロジェクター(1)から脚ユニット(2)を取り出して、外部で脚ユニット(2)の分解ができ、作業性がよい。必要に応じて脚ユニット(2)単位で取替えができ、作業能率を一層高めることができる。

【0018】又、出沒部材(5)の下面は緩やかに円弧状に膨らんでいるため、テーブルが左右に傾いていた場合において、プロジェクター(1)の後部のネジ式当り部(3)(3)の調整によってプロジェクター(1)自体は正しい姿勢に保持する際、安定して支持できる。しかも、出沒部材(5)の下面には弾性板(58)が装着されており、プロジェクター(1)の自重によって弾性板(58)が弾性変形してテーブルに対して面当たりとなり、プロジェクター(1)を一層安定してテーブル上にセットできる。本発明は、上記実施例の構成に限定されることなく、特許請求の範囲に記載の範囲で種々の変形が可能である。

【図面の簡単な説明】

【図1】プロジェクターの正面図である。

【図2】プロジェクターの側面図である。

【図3】プロジェクターの底面図である。

【図4】脚ユニットの斜め前方上からの斜面図である。

【図5】脚ユニットの斜め後方下からの斜面図である。

【図6】出沒脚と突起の係合状態を示す縦断面図である。

【図7】出沒脚と突起の係合状態を示す横断面図であ



7

る。

【図8】従来例のプロジェクターの裏側の斜面図である。

【図9】従来例のプロジェクターの側面図である。

【符号の説明】

(1) プロジェクター

(2) 脚ユニット

(3) ネジ式当り部

(5)

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8

\* (4) ケース

(5) 出沒部材

(51) 出沒脚

(52) 凹凸面

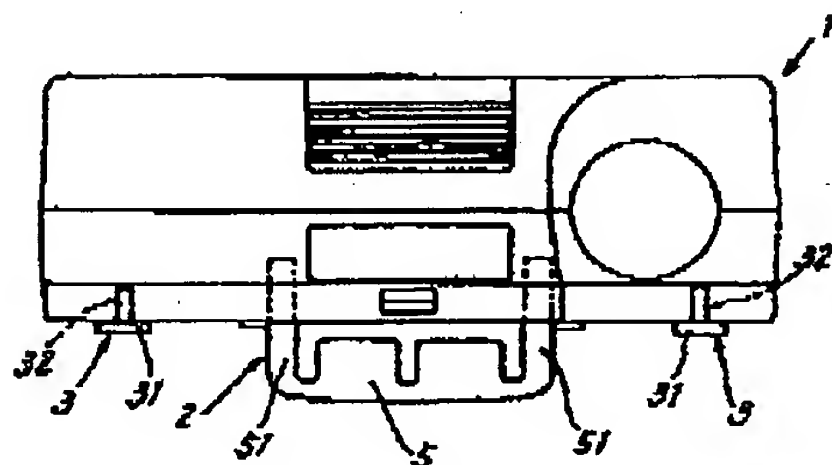
(53) 凹部

(6) 係合部材

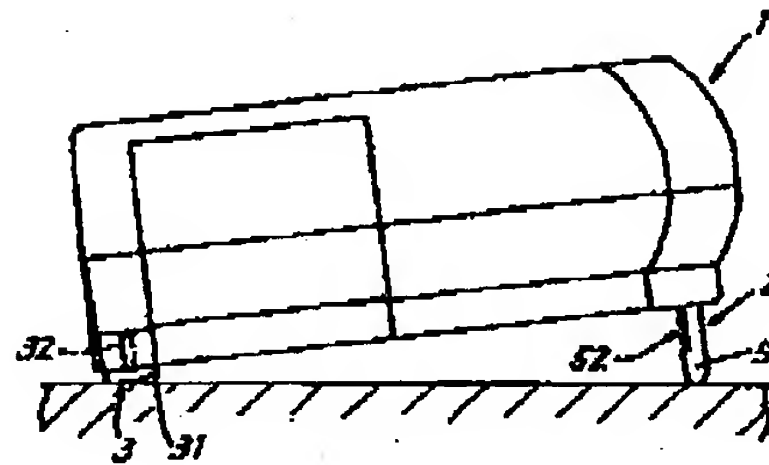
(7) 押しボタン

\*

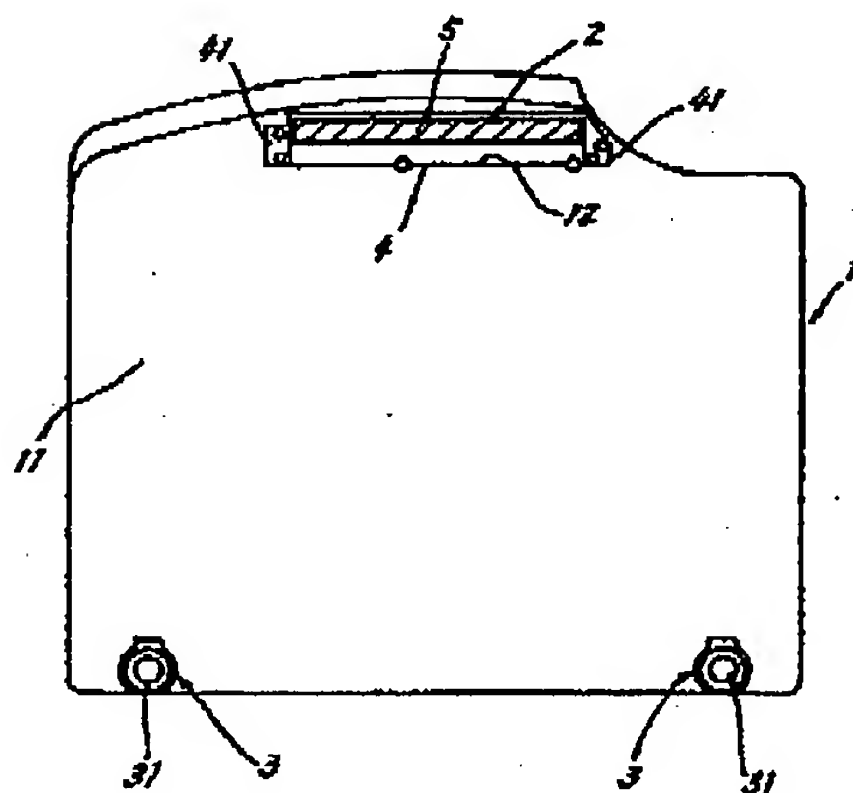
【図1】



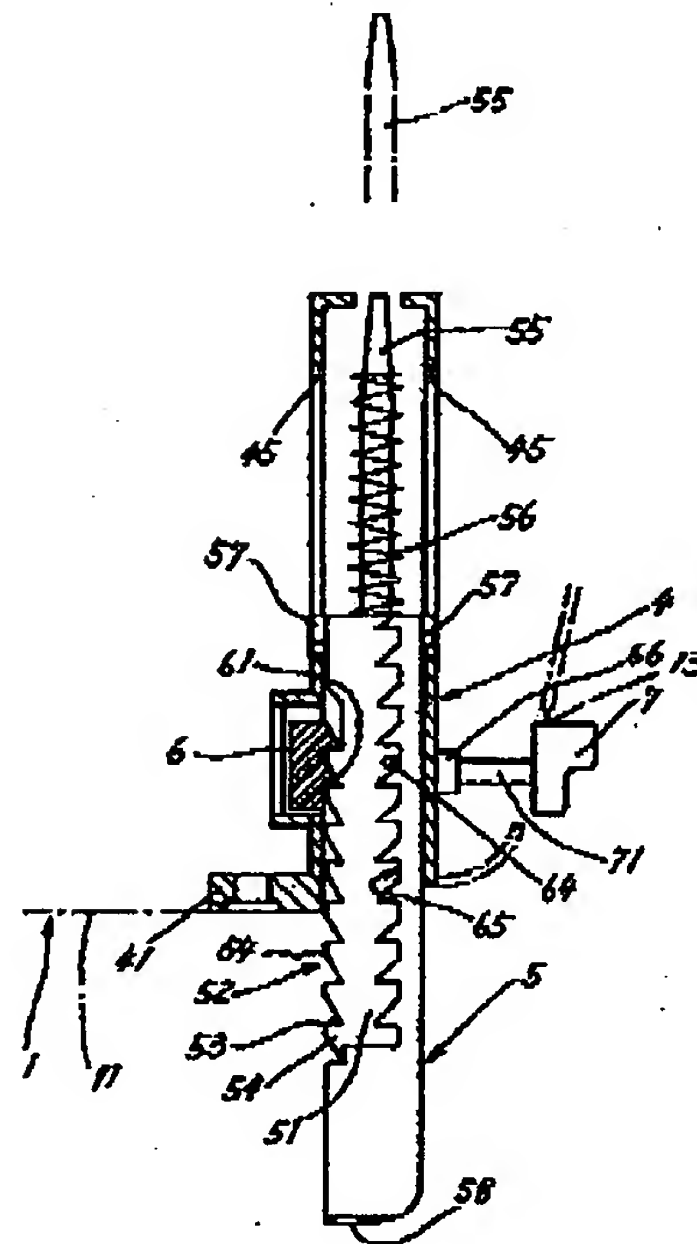
【図2】



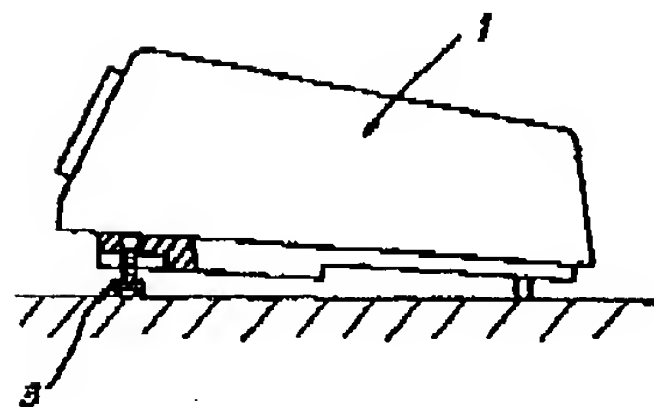
【図3】



【図6】



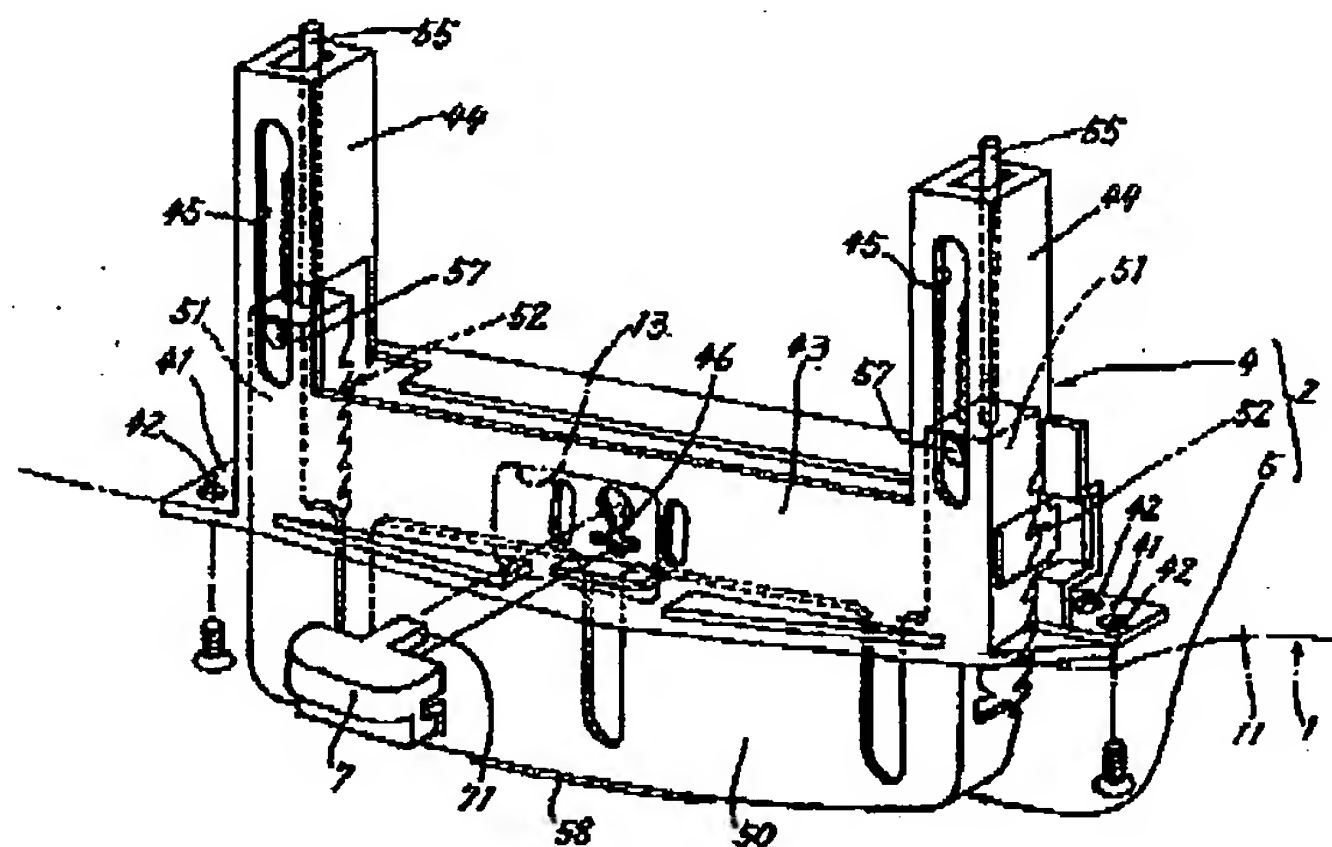
【図9】



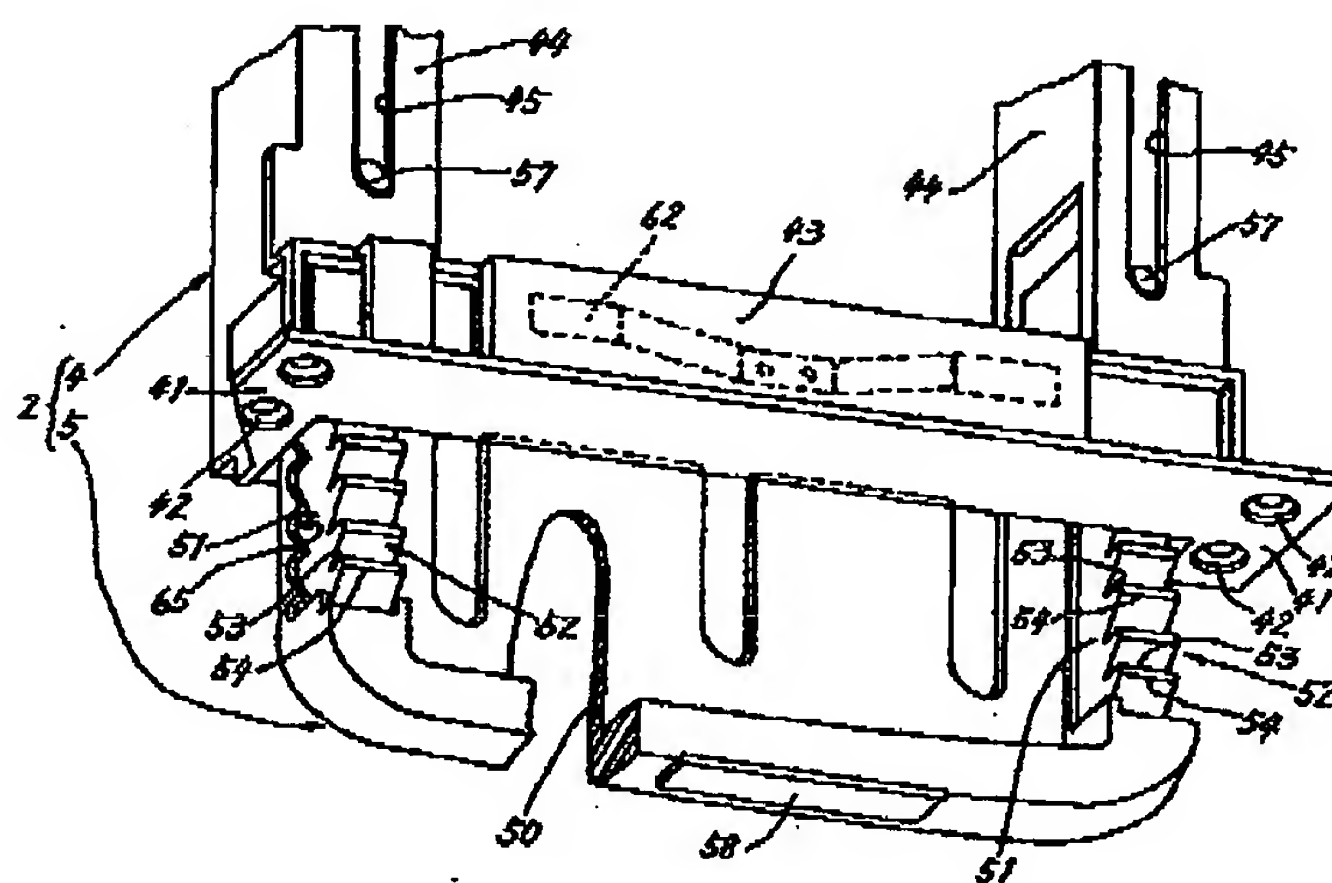
(6)

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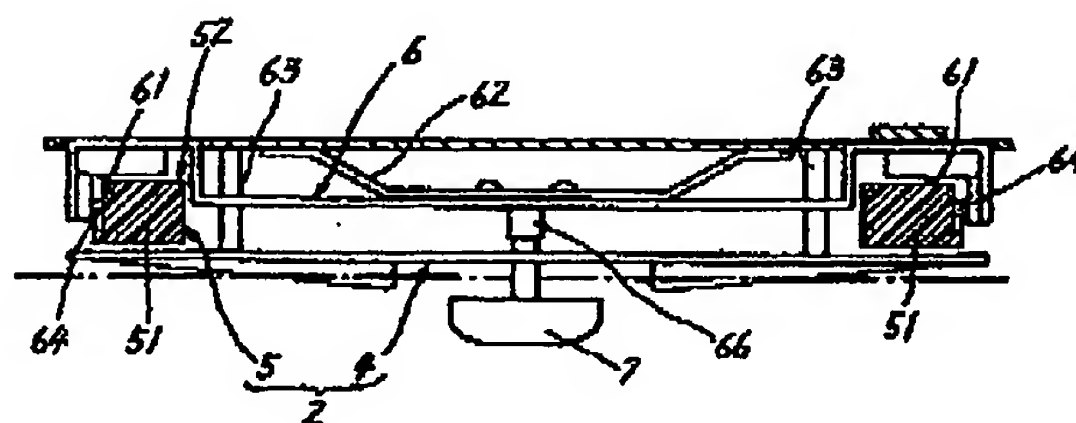
【図4】



【図5】



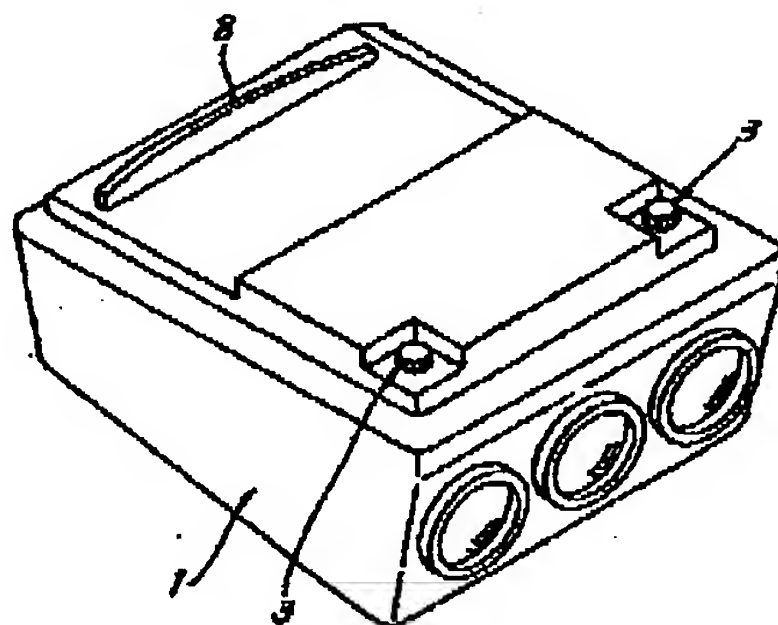
【図7】



(7)

特開平9-54370

【図8】





CPME0240624

## Patent Office of the People's Republic of China

Address : Receiving Section of the Chinese Patent Office, No. 6 Tuchang Road West, Haidian District, Beijing, Postal code: 100088

Applicant	SEIKO EPSON CORPORATION		Applicant's Address	
Agent	China Patent Agent (H.K.) Ltd.		Priority Date	March 12, 2004
Patent Application No.	02108540.4	Application Date	March 27, 2002	Exam. Date
Title of Invention	PROJECTOR			

*First Office Action*

1. ☒ Pursuant to the provision of Article 35 (1) of the Chinese Patent Law, the examiner made an examination as to substance of the captioned patent application for invention upon the request for substantive examination filed by the applicant.
- ☐ Pursuant to the provision of Article 35 (2) of the Chinese Patent Law, the Chinese Patent Office has decided to conduct on its own initiative an examination as to substance of the captioned patent application for invention.
2. ☒ The applicant requests taking the filing date, Mar. 27, 2001, at the JP Patent Office, the filing date, \_\_\_\_\_, at the \_\_\_\_\_ Patent Office, the filing date, \_\_\_\_\_, at the \_\_\_\_\_ Patent Office as the priority date of the present application.
- ☒ A copy of the first filed patent application certified by the receiving organ of the initial country of filing has been submitted by the applicant.
- ☐ A copy of the first filed patent application certified by the receiving organ of the initial country of filing has not been submitted by the applicant. Pursuant to the provision of Article 30 of the Chinese Patent Law, no priority right shall be deemed to have been claimed.
3. ☐ The applicant filed amended application document(s) on \_\_\_\_\_ and \_\_\_\_\_.
- ☐ Examination has confirmed that \_\_\_\_\_ filed on \_\_\_\_\_ cannot be accepted, \_\_\_\_\_ filed on \_\_\_\_\_ cannot be accepted,
- as the above amendment(s) ☐ is/are not in conformity with the provision of Article 33 of the Chinese Patent Law.
- ☐ is/are not in conformity with the provision of Rule 51 of the Implementing Regulations of the Chinese Patent Law.
- ☐ For the specific reason that the amendment(s) cannot be accepted, see the text of the Office Action.

4. ☐ The examination is conducted in the light of the original application document(s)  
☒ The examination is conducted in the light of the following application document(s):  
in the original application documents submitted on the filing date: Claim(s) 1-9  
page(s) 1-15, 18-20 of the description, Figure(s) P. 1-16 of the drawing(s);  
Claim(s) \_\_\_\_\_, page(s) 16, 17 of the description, Figure(s)  
submitted on Mar. 17, 2003; Claim(s) \_\_\_\_\_, page(s) \_\_\_\_\_ of the  
description, Figure(s) \_\_\_\_\_ submitted on \_\_\_\_\_  
☒ Abstract of the description and the abstract figure submitted on the filing date.
5. ☐ The present Office Action has been prepared without a search having been conducted.  
☒ The present Office Action has been prepared with a search having been conducted.  
☒ The following reference document(s) is/are cited in this Office Action (its/their serial number(s) will continue to be used throughout the examination procedure):

No.	Number in Title of Document	Date of Publication (or, filing date of interfering application)
1	JP 平 9-54970A	(Date) Feb. 25, 1997
2		(Date)
3		(Date)
4		
5		
6		

6. The concluding comments of the examiner are:

- ☒ On the description:
- ☐ The content of the application comes within the scope where no patent right is granted as provided in Article 5 of the Patent Law.
  - ☐ The description is not in conformity with the provision of Article 26(3) of the Patent Law.
  - ☒ The drafting of the description is not in conformity with the provision of Rule 19 of the Implementing Regulations.
- ☒ On the claims:
- ☐ Claim comes within the scope where no patent right is granted as provided in Article 25 of the Patent Law.
  - ☐ Claim is not in conformity with the definition of invention in Rule 2(1) of the Implementing Regulations.
  - ☐ Claim \_\_\_\_\_ does not possess novelty as provided in Article 22(2) of the Patent Law.
  - ☒ Claim 1 does not possess inventiveness as provided in Article 22(3) of the Patent Law.
  - ☐ Claim \_\_\_\_\_ does not possess practical applicability as provided in Article 22(4) of the Patent Law.
  - ☐ Claim \_\_\_\_\_ is not in conformity with the provision of Article 26(4) of the Patent Law.

Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provision of Article 31(1) of the Patent Law.

☒ Claim 1, 2, 5, 6 is not in conformity with the provisions of Rules 20-23 of the Implementing Regulations.

☐ Claim \_\_\_\_\_ is not in conformity with the provision of Article 9 of the Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity of the provision of Rule 12(1) of the Implementing Regulations.

For specific analyses of the above concluding comments, see the text of this Office Action.

7. In view of the above concluding comments, the examiner holds that:

☐ The applicant should amend the application document in accordance with the requirements raised in the text of this Office Action. The amended document(s) should be submitted in duplicate and should conform to the provisions of Article 33 of the Patent Law and Rule 51 of the Implementing Regulations of the Chinese Patent Law.

☒ The applicant should expound in his Observations the reasons why the captioned patent application is patentable and amend the places not conforming to regulations as pointed out in the text of the Office Action, otherwise it would be impossible for the patent right to be granted.

☐ The captioned patent application contains no substantive content for which the patent right may be granted, thus if the applicant has not advanced his reasons or has not done so adequately, the application will be rejected.

8. The applicant should pay attention to the following matters:

(1) In accordance with the provision of Article 37 of the Patent Law, the applicant should submit his/its Observations within four months from the date of receipt of this Office Action; if, without any justified reason, the time limit for making response is not met, the application will be deemed to have been withdrawn.

(2) The amendments made by the applicant to his application should conform to the provision of Article 33 of the Patent Law, the amended text should be in duplicate and the format should conform to the relevant provisions of the Guidelines for Examination.

(3) The applicant's Observations or amended text should be mailed or presented to the Receiving Section of the Chinese Patent Office. Document not mailed or presented to the Acceptance Section have no legal force.

(4) Without making an appointment, the applicant and/or agent may not come to the Chinese Patent Office to hold an interview with the examiner.

9. This Office Action consists of the text portion totalling 2 page(s) and of the following annex(es):

☒ 1 duplicate copies of the reference document(s) cited totalling 7 page(s).

☐

☐



Your Ref EPS022CN

Our Ref. CPME0240624

### Text of the First Office Action

As stated in the description, the present application relates to a projector. Upon examination, the Examiner's comments are hereby made as follows:

The reference document 1 cited herein is: JP 平 9-54370A.

#### I

Independent claim 1 claims a projector. Reference document 1 has disclosed a projector and the height and attitude adjusting mechanism thereof. Said projector (see reference sign in reference document 1) comprises (see the contents disclosed in Figs.1-6, the abstract and line 19, column 2 to line 5, column 3 of the description) a casing including a height and attitude adjusting mechanism (see reference sign 5 in reference document 1) that adjusts an attitude of the casing, said height and attitude adjusting mechanism comprising: a retractable foot (namely the foot member, see reference sign 51 in reference document 1) disposed at the center of the front side of the casing, the retractable foot being advanceable and retractable relative to the casing; a clamp (see reference sign 6 in reference document 1) that engages with any of a plurality of engaging grooves (53) formed on the retractable foot (51) and arranged in an advancement and retraction direction of the retractable foot to fix the retractable foot at a desired advancement and retraction position; a button (see reference sign 7 in reference document 1) disposed at a corner on the front side of the casing that causes the clamp (6) out of engagement with the engaging groove (53); and a pressing piece (namely the link mechanism, see reference sign 71 in reference document 1) that interlocks the manipulation of the button (7) with a movement of the clamp (6). In addition, it needs to state that claim 1 points out definitely that said projector further comprises an optical system that modulates a light beam irradiated by a light source and projects the light beam in an enlarged manner to form a projection image; said casing is used to accommodate the optical system; and the projection image is projected in a direction from a back side of the casing toward a front side thereof. Reference document has not definitely mentioned said technical features. However,

those ordinarily skilled in the art should know that said optical system, said function of the optical system and the projecting direction of said projection image are essential to a conventional projector. Therefore, said technical features can be directly deduced from the contents of reference document 1 without any doubts. Thus, it can be seen that claim 1 is only different from reference document 1 in the expression. It does not need any inventive efforts at all for those ordinarily skilled in the art to obtain the technical solution claimed in claim 1 inspired and taught by reference document 1. Accordingly, claim 1 does not possess any prominent substantive features, nor represent a notable progress with reference to reference document 1 and is non-inventive under Article 22.3 of the Patent Law.

## II

The present application also contains the following defects:

1. Claims 1 and 2 contain a word of indefinite meaning, namely "approximately", and are contrary to the provision of Rule 20.1 of the Implementing Regulations of the Patent Law.

2. Claim 5 contains "the support member" and "the turn shaft" therein. However, claim 4 to which claim 5 directly refers and claims 3 and 1 to which claim 5 indirectly refers have not mentioned said "support member" and "turn shaft". Therefore, the word "the" used therein will results in unclarity in referent. Thus, claim 5 is contrary to the provision of Rule 20.1 of the Implementing Regulations of the Patent Law. The applicant should delete the word "the" therefrom.

3. For the same reason as that given in the comments on claim 5, "the central portion and the both sides" contained in claim 6 are not clear in referent. Thus, claim 6 is contrary to the provision of Rule 20.1 of the Implementing Regulations of the Patent Law. The applicant should change it into "a central portion and both sides of the foot member".

4. The description contains the statements, "as shown in Fig. 17(A)", "as shown in Fig. 17(B)" and "shown in Fig. 17(A)" in pages 17-19. However, the drawings

contain a Fig.17, and the "Fig. 17(A)" and "Fig. 17(B)" fail to appear therein. Thus, it can be seen that the text of the description is not consist with the drawings, which is contrary to the provision of Rule 19.3 of the Implementing Regulations of the Patent Law.

For the above reasons, the present application based on the current text cannot be granted the patent right. The applicant should submit new claims and/or description according to the foregoing comments within the prescribed time limit. The amendments to the application documents should comply with the provisions of Article 33 of the Patent Law and may not go beyond the scope of disclosure of the initial description and claims. If the applicant fails to rectify the above-mentioned defects or states reasons testifying that the present application complies with the aforesaid provisions within the time limit for response prescribed herein, the present application will be rejected. The applicant should provide a copy of the parts of the original to which amendments are made and on which the amendments should be marked out clearly with color pen.

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17/03 04 15:55 FAX

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CHINA PATENT AGI. PA

→→ OLIFF

0008/0019  
0002

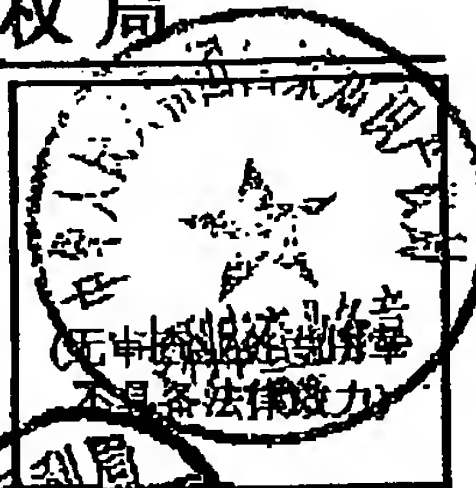
## 中华人民共和国国家知识产权局

邮政编码:

香港湾仔港湾道 23 号康翠中心 22 字楼

中国专利代理(香港)有限公司

黄力行



申请号: 02108540.4

部门及通知书类型:

9-C

发文日期:

申请人:

精工爱普生株式会社

发明名称:

一种投影仪

## 第一次审查意见通知书

0240624 W

1. ☒ 依申请人提出的实审请求, 根据专利法第 35 条第 1 款的规定, 审查员对上述发明专利申请进行实质审查。☐ 根据专利法第 35 条第 2 款的规定, 国家知识产权局决定自行对上述发明专利申请进行审查。2. ☒ 申请人要求以优先权:

JP 专利局的申请日 2001 年 3 月 27 日 为优先权日,  
 专利局的申请日 为优先权日,  
 专利局的申请日 为优先权日,  
 专利局的申请日 为优先权日,  
 专利局的申请日 为优先权日,

☒ 申请人已经提交了经原申请国受理机关证明的第一次提出的在先申请文件的副本。☐ 申请人尚未提交经原申请国受理机关证明的第一次提出的在先申请文件的副本, 根据专利法第 30 条的规定视为未提出优先权要求。3. ☐ 申请人于 年 月 日和 年 月 日提交了修改文件。☐ 经审查, 其中: 年 月 日提交的 不能被接受; 年 月 日提交的 不能被接受;因为上述修改: ☐ 不符合专利法第 33 条的规定。 ☐ 不符合实施细则第 51 条的规定。

修改不能被接受的具体理由见通知书正文部分。

4. ☐ 审查是针对原始申请文件进行的。☒ 审查是针对下述申请文件进行的:

说明书

申请日提交的原始申请文件的第 1-15、18-20 页;

2003 年 03 月 17 日提交的第 16、17 页; 年 月 日提交的第 页;

年 月 日提交的第 页; 年 月 日提交的第 页;

权利要求

申请日提交的原始申请文件的第 1-8 项;

年 月 日提交的第 项; 年 月 日提交的第 项;

年 月 日提交的第 项; 年 月 日提交的第 项;

附图

申请日提交的原始申请文件的第 1-16 页;

年 月 日提交的第 页; 年 月 日提交的第 页;

年 月 日提交的第 页; 年 月 日提交的第 页;

说明书摘要

☒ 申请日提交的;☐ 年 月 日提交的;

摘要附图

☒ 申请日提交的;☐ 年 月 日提交的;5. ☐ 本通知书是在未进行检索的情况下作出的。21301  
2002.1

回邮请寄: 100088 北京市海淀区蓝旗营西土城路 8 号 国家知识产权局专利局受理处收

(注: 凡寄给审查员个人的信函不具有法律效力)

27 JUL 2004





# 中华人民共和国国家知识产权局

- ☒ 本通知书是在进行了检索的情况下作出的。  
☒ 本通知书引用下述对比文献(其编号在今后的审查过程中继续沿用):

编号	文件号或名称	公开日期 (或抵触申请的申请日)
1	JP 平 9-54370A	1997.02.25
2		
3		
4		

## 6. 审查的结论性意见:

- ☒ 关于说明书:
- ☐ 申请的内容属于专利法第 5 条规定的不授予专利权的范围。
  - ☐ 说明书不符合专利法第 26 条第 3 款的规定。
  - ☒ 说明书的撰写不符合实施细则第 19 条的规定。
- ☒ 关于权利要求书:
- ☐ 权利要求\_\_\_\_不具备专利法第 22 条第 2 款规定的新颖性。
  - ☒ 权利要求 1\_\_\_\_不具备专利法第 22 条第 3 款规定的创造性。
  - ☐ 权利要求\_\_\_\_不具备专利法第 22 条第 4 款规定的实用性。
  - ☐ 权利要求\_\_\_\_属于专利法第 25 条规定的不授予专利权的范围。
  - ☐ 权利要求\_\_\_\_不符合专利法第 26 条第 4 款的规定。
  - ☐ 权利要求\_\_\_\_不符合专利法第 31 条第 1 款的规定。
  - ☐ 权利要求\_\_\_\_不符合实施细则第 2 条第 1 款关于发明的定义。
  - ☐ 权利要求\_\_\_\_不符合实施细则第 13 条第 1 款的规定。
  - ☒ 权利要求 1、2、5、6 不符合实施细则第 20 条至第 23 条的规定。
  - ☐

上述结论性意见的具体分析见本通知书的正文部分。

## 7. 基于上述结论性意见, 审查员认为:

- ☐ 申请人应按照通知书正文部分提出的要求, 对申请文件进行修改。
- ☒ 申请人应在意见陈述书中论述其专利申请可以被授予专利权的理由, 并对通知书正文部分中指出的不符合规定之处进行修改, 否则将不能授予专利权。
- ☐ 专利申请中没有可以被授予专利权的实质性内容, 如果申请人没有陈述理由或者陈述理由不充分, 其申请将被驳回。
- ☐

## 8. 申请人应注意下述事项:

- (1) 根据专利法第 37 条的规定, 申请人应在收到本通知书之日起的  3  个月内陈述意见。如果申请人无正当理由逾期不答复, 其申请将被视为撤回。
- (2) 申请人对其申请的修改应符合专利法第 33 条的规定, 修改文本应一式两份, 其格式应符合审查指南的有关规定。
- (3) 申请人的意见陈述书和/或修改文本应邮寄或递交给国家知识产权局专利局受理处, 凡未邮寄或递交给受理处的文件不具备法律效力。
- (4) 未经预约, 申请人和/或代理人不得前来国家知识产权局专利局与审查员举行会晤。

## 9. 本通知书正文部分共有 2 页, 并附有下列附件:

- ☒ 引用的对比文件的复印件共 1 份 2 页。
- ☐



申请号: 02108540.4

第一次审查意见通知书正文

1

## 第一次审查意见通知书正文

如说明书所述, 本申请涉及一种投影仪。经审查, 现提出如下审查意见:

本通知书中引用如下对比文件: D1: JP 平 9-54370A

## (一)

独立权利要求 1 请求保护一种投影仪, 对比文件 1 公开了一种投影仪及其高度、俯仰角调整装置, 所述投影仪 (见 D1 之附图标记 1) 包括 (见 D1 之附图 1-6 及说明书摘要, 说明书第 2 栏第 19-第 3 栏第 5 行内容): 壳体, 该壳体包括一高度、俯仰角调整装置 (见 D1 之附图标记 5), 用来通过调整所述壳体的俯仰角, 所述高度、俯仰角调整装置包括: 一伸缩脚 (即为支座, 见 D1 之附图标记 51), 布置在所述壳体前侧的中央, 所述支座相对于所述壳体可以上下伸缩移动; 一夹具 (见 D1 之附图标记 6), 与设在所述伸缩脚 (51) 上并沿所述伸缩脚的上下伸缩方向布置的若干接合凹槽 (53) 相接合, 用来将所述伸缩脚固定在所要求的伸缩位置上; 一按钮 (见 D1 之附图标记 7), 布置在所述壳体的前侧的一角, 用来使所述夹具 (6) 脱离与所述接合凹槽 (53) 的接合状态; 一按压片 (即为连杆机构, 见 D1 之附图标记 71), 用来使所述按钮 (7) 的操作与所述夹具 (6) 的运动互相联动; 此外需要说明的是, 权利要求 1 中明确指出: 所述投影仪还包括: 一光学系统, 用来调制由光源照射的光束, 并以放大的方式投射所述光束以形成一投影图像; 和所述壳体用来容纳所述光学系统, 所述投影图像的投射方向是从所述壳体的后侧到其前侧; 而对比文件 1 中并未明确提到这些技术特征, 但是所属领域普通技术人员应该知晓: 所述光学系统、光学系统的所述功能、以及所述投影图像的投射方向均为常规投影仪所必然具备的, 因此这些技术特征属于可由对比文件 1 的内容直接毫无疑问地导出的技术特征。由此可见, 权利要求 1 与对比文件 1 的区别仅在于表述形式上有所不同, 而所属领域普通技术人员在对比文件 1 的启示和教导下得到权利要求 1 所述的技术方案是完全不需要花费创造性劳动的, 因此权利要求 1 相对于对比文件 1 不具备突出的实质性特点和显著的进步, 不符合专利法第二十三条第三款的规定, 不具备创造性。

申请号: 02108540.4

第一次审查意见通知书正文

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## (二)

该申请还存在如下缺陷:

1. 权利要求 1、2 中出现的“大致上”的限定方式的含义不确定, 不符合专利法实施细则第二十条第一款的规定;
2. 权利要求 5 出现“所述转轴”、“所述支承件”, 而在该权利要求所直接引用的从属权利要求 4 及间接引用的权利要求 3、1 中均未出现过“转轴”和“支承件”, 因此此处用“所述”二字会导致指代不清楚, 不符合专利法实施细则第二十条第一款的规定, 请申请人删除“所述”;
3. 与评述意见 2 同理, 权利要求 6 中出现的“所述中间部分和所述两侧”的表达方式的指代意义不清楚, 不符合专利法实施细则第二十条第一款的规定, 请申请人将其改为“支座的中间部分和两侧”;
4. 说明书第 16、17 页中提到“如图 17 (A) 所示”、“如图 17 (B) 所示”、“和 17 (A) 所示”, 而说明书附图中仅存在附图 17, 此外并未出现图 17 (A)、图 17 (B), 由此可见, 说明书文字部分和附图不一致, 不符合专利法实施细则第十九条第三款的规定。

基于上述理由, 该申请按照目前的文本是不能够被授权的。申请人应根据上述审查意见在指定的期限内提交新的权利要求书和/或说明书, 修改时应满足专利法第三十三条的规定, 不得超出原说明书和权利要求书记载的范围, 如果申请人不能在本通知书规定的答复期限内克服上述缺陷或表明其具有符合所述规定的充分理由, 本申请将被驳回。申请人应提供修改所涉及的原文复印件, 并将修改之处用彩笔标示清楚。